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Impressions after Five Years of Rural Practice

JACK L. GIBBS, M. D., *Havana, Ill.*

I AM VERY HAPPY to have the opportunity to speak to a group of people who are interested in improving the rural health care of America. In doing so I am, in a small way, satisfying a personal indebtedness. Had it not been for the medical scholarship and loan fund activity, of which the Illinois Agricultural Association is a partner, I would probably not be a doctor today; or at least not a doctor in a rural community.

In 1947 when I was seeking entrance into a medical school and investigating ways of financing my medical education, this scholarship and loan fund was called to my attention by a member of the committee on Rural Health and Student Loan Fund of the Illinois State Medical Society, the other partner in the joint activity. I found that this Joint Student Loan Fund Board would loan me $5,000 and recommend my admission to the state medical school if I met the entrance requirements of the school, and was recommended by the presidents of the Farm Bureau and medical societies of my home county.

The only stipulation was that I sign an agreement to return after my internship to a community of 5,000 population or less to practice general medicine for a period of five years. It was also agreed that I would repay the loan during this five years at the interest rate of 2 per cent per annum. The money is loaned during the four years of medical school at six-month intervals — $625 per semester. To discourage those who would violate their agreement to return to rural practice, there are severe penalty clauses included in the contract.

At this time both the Illinois Agricultural Association and the Illinois State Medical Society have contributed $77,000, or a total of $154,000, to the Joint Student Loan Fund.

Since 1948 a total of 122 students have signed contracts, and 99 of these are still in the program. This discrepancy is due in part to academ-

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ic failures, and in part to withdrawals from school for other reasons of a nonacademic nature.

On Sept. 1, 1959, 32 doctors were in practice in rural communities as a result of this program. Eight are now in military service, 17 are interning, 32 are in medical school, 10 are entering school in the fall of 1959, and 15 more are scheduled to enter school in 1960.

As far as the plan is concerned, no money has been lost, and the fund is beginning to level off, with the objective of the rotation of funds being realized. In other words, as the money is loaned, it is being paid back. Through this fund, some increase, although minimal at this point, has been made in the number of practicing rural physicians in Illinois.

Beginning practice

As one of the participants in the Illinois Student Loan Fund Program, I entered the practice of medicine five years ago in the town of Havana, population 4,500. The nearest hospital was 20 miles away, and consultants in most specialties were 50 miles away.

I rented the only office space available, which was above one of the hardware stores; and with the aid of my wife, who is a registered nurse, we washed, painted, and redecorated. I borrowed $300 to buy office furniture, waiting room rug, secondhand examining room furniture, and an oil stove with which to heat the office. The medical supply houses and the local druggist were most generous in advancing basic supplies and drugs. My wife was my receptionist, nurse, bookkeeper, housekeeper, and along with me the office janitor.

We put an announcement of our hours in the local weekly paper, had my name painted on the window, and sat down to await our first patients—to await them with a thrill of anticipation that is difficult to describe and can be shared only by those who have begun their practice of medicine in like manner.

With my stethoscope, blood pressure cuff, and reflex hammer, with only my eyes, ears, and finger tips immediately available, I soon became an astute diagnostician; for the words of my teachers were still fresh in my ears—diagnose first , treat second. I did no dispensing of drugs, which allowed me to concentrate on diagnosis and spend more time with my patients, although I realize that this is not always possible in more remote areas and small villages. At any rate I learned and learned and learned. The pressure to know and understand is never so great as when one is face to face with the actual problems; and decisions often must be reached quickly and accurately. The amount of learning experienced and knowledge gained that first year, in retrospect, is staggering. Every cure, no matter how minor the condition, was a therapeutic triumph, and I became adept at the art as well as the science of medicine. I found that all who claimed to be sick were not physically ill, and some of those who denied illness were sicker than they thought. I gained a measure of sympathy and compassion that I had not had before, and I learned that the family physician is often the family confidant and advisor in nonmedical as well as medical matters.

Within a few months I was busier than I wished to be. I found myself on the treadmill of general practice. As more and more patients came, I could spend less and less time with each one. The exhausting and lonely grind of a busy solo practice, which leaves so little time for family and continuing study, soon began to pall, and after one year I succeeded in acquiring a partner — a former classmate with one year's residency training in internal medicine.

Partnership practice

This has made rural practice more enjoyable for me. We moved into larger modern offices and acquired such diagnostic equipment as x-ray, an electrocardiograph, and more laboratory facilities. We were able to hire more technical assistance in the form of a laboratory technician, receptionist, and part-time bookkeeper. My wife was relieved of her nursing duties, and we started raising a family. I was able to get away for some postgraduate courses, to attend more medical meetings, and to become more active in community affairs, such as serving on the school board and acting as health and medical advisor to many local health projects.

It would seem that this kind of partnership medical practice arrangement should be encouraged rather than discouraged. It allows the rural physician more latitude in his activities, and he is more apt to keep abreast of medical progress if he does have an associate. At the same time it compromises very little the close physi-

cian-patient relationship that is so important to the maintenance of optimum medical care.

Establishing a hospital

There were many in my community who were receptive to the idea of a community hospital. We physicians in the town felt that we were not practicing medicine at the peak of our efficiency or our capabilities without one. Attempts at caring for patients in a hospital 20 miles away is a frustrating and time-consuming effort. Office hours are often interrupted with the necessity of a hospital call; and when this entails driving time of 30 minutes each way, it works a hardship on both the doctor, the patient he is to see, and the patients he leaves waiting behind. The hardship is particularly severe where obstetrics is concerned. To illustrate the travel time and distance that can be consumed, I recall the 16 hour period one night when I delivered four babies and got home each time before I was called for the next one. This entailed driving a total of 160 miles and spending approximately four hours on the highways — a dangerous pastime in these days.

At any rate, we pitched in with our community leaders and interested citizens. Since we were not immediately eligible for Hill-Burton Funds, we started a drive for a community hospital that initially included ten townships in the proposed tax district. By the time the campaigning was over nine of the ten townships, or all but our own of Havana, had withdrawn from the proposed tax district. Despite the loss of the expected revenue, we did build a 50-bed hospital, which within less than two years of its opening has been fully accredited by the Joint Commission on Accreditation of Hospitals. Of this joint accomplishment we and our community are justly proud. Problems of hospital personnel, such as shortage of nurses, are to some extent being solved by the formation of nursing scholarships offered by our very active women's auxiliary, service clubs, and memorial funds.

It is interesting to note that in our particular situation our plans for a community hospital were almost defeated by lack of support from our adjacent rural communities. The proposed taxation was to be 10 cents on the $100 assessed evaluation of real estate and personal property. Although I recognize the inequities which often arise from this source of revenue, I feel that if we of the rural areas are to maintain high standards of medical care and attract high caliber men to practice medicine, we must support construction of this type of facility. It is something to consider — that the privilege of administration and ownership of our hospital may compensate for the difficulties of gaining local financial support. I believe it is actually better, in the long run, for a community to endure the financial obligation of hospital construction than to accept subsidization that may culminate in increasing federal regulation, control, and interference.

Rural physicians needed and wanted

It would seem from what I have said so far that all is well on the rural front. It would appear that the future of rural medical care is secure. Unfortunately, I don't think it is. By and large, the efforts to date hardly dent the surface of a steadily mounting deficit of rural practitioners. The number of general practitioners in the medical populace, country wide, has declined in recent years from 75 per cent to 40 per cent, and nowhere is this deficit of practitioners more apparent than in the rural communities.

I recently received a letter from an acquaintance in a town of 2,000 people requesting some assistance in procuring for them a physician for their community. As I pondered this request and recalled efforts made by other communities to obtain physicians, I experienced a sense of humility, mingled somewhat with pride I suppose, to think how we as physicians were so necessary, so sought after. And in the same twinkling I was impressed by the very little that was actually being done by organized medicine to solve the dilemma of these small communities. I continue to be impressed by the lethargy and inertia with which this problem is being treated. I say to myself, "Do the educators and the higher echelon of medicine feel that the family physician is no longer necessary? Do they feel that his presence in the community can be replaced by the large clinic 50 miles away?"

If that is so, why is it that in the face of this dearth of family physicians, our communities are flourishing with osteopaths and chiropractors. Why is it that many small communities are dependent upon foreign trained physicians for their medical care? It is simply because these

physicians are willing to do a job that we are failing to do, and this tremendous deficiency in family-physician supply for the small community must be met one way or another.

In the light of my own limited experience, I am convinced that people want to have a family doctor. I am convinced that they want a family doctor just as they want a family minister, druggist, or dentist. I believe that his presence in a community promotes a sense of security and peace of mind, assurance that an interested member of one's own community is at hand to deal with the problems of health care that may arise.

I am just as firmly convinced that the medical interests of a people really are best served when care is initiated promptly in the community in which the patient resides; that although specialized treatment and facilities may be necessary later, the presence of a family medical advisor and coordinator enhances the over-all quality of care. It is at this grassroots level that the sympathetic relationship between physician and patient—the so-called doctor-patient relationship — has its best chance for survival and growth. And make no mistake about it, it is all the things meant by and incorporated in this loosely used phrase — the doctor-patient relationship —that is our first and strongest line of defense against the socialization of medicine. When the doctor-patient relationship is gone, who cares, except the doctor, whether medicine is socialized or not.

It would seem paradoxical to me that our profession, which has given to the United States the highest caliber of medical care to be found anywhere, some of the greatest advances in the world in the fields of diagnosis, treatment, and medical technology, should ignore the need for that basic medical commodity for which the community longs — the family physician. In the last five years I have become increasingly concerned over these steadily yet subtly changing concepts and attitudes toward family care.

Physicians shun general practice

I do not feel that the increasing deficit of rural physicians is simply faulty distribution, as some claim. We need only to look at the surveys concerning the aspirations of graduating medical students to see the reasons for our vanishing colleagues. I have recently been through the educational process and for the past few years have been exposed to actual contact with patients, and with my specialist consultants. I also have read Life, the Readers Digest, and the Ladies Home Journal, and to me the explanation for the decision of the majority of the graduates not to enter general practice is readily apparent. It is my impression that this reluctance stems from (1) feelings of inadequacy in the over-all field of general medical care, as the usual training period nears its completion, and (2) lack of professional status.

It is in the medical schools, I believe, that the first seeds are sown which breed feelings of inadequacy. Present-day medical education is not geared to prepare the student for the general practice of medicine. Since much of the student's training takes place in the university hospital, he is exposed too often to the bizarre and unusual disease, and too little to the more commonly seen diseases that confront the family physician. He, in fact, may finish his medical education with the distorted impression that general medical practice is composed of these cases which confound the diagnostic efforts of even his renowned professors.

It is human nature for the educator to dwell on the more difficult aspects of his specialty, but he often sacrifices time that could be spent on the principles of diagnosis and treatment of conditions that the family physician should be able to care for. For example: I recall lectures on mastoid surgery, which I never expect to do, but no suggestions for the office treatment of the chronically draining ear, nor the best methods for stopping a stubborn nose bleed that may get one out of bed at midnight.

I do not mean to suggest that we should sacrifice the teaching of basic principles to a hodgepodge of minor therapeutics, but I do feel that the curriculum needs a basic re-evaluation of its aims and objectives, in the light of present-day medical practice, both general and specialty.

In regard to lack of status, I would say that doctors themselves are no less status seekers than the rest of the populace; and when it comes to professional status, they are particularly sensitive. The student needs only to read the lay magazines and newspaper articles to realize what the professional standing of the family physician is with many laymen.

In a recent Life magazine article the general practitioner was described as the "jack of all

trades," and, of course, what normally follows this phrase, although left unsaid in the article, is "master of none."

In my own experience this attitude is often overcome in rural practice by time and a conscientious effort on the part of the physician. However, since third parties such as the unions and Veterans Administrations have entered the medical care field, my ego has been bruised, in some instances, by not being able to treat patients because I am a general practitioner.

Many of the specialty consultants, particularly those who have not had the benefit of some general practice, are often quick to criticize the efforts of the generalist. It is unfortunate that this stigma, which puts the family physician at the bottom of the status pole, often starts in medical school, where by innuendo if not in words, some of the teaching cases may be presented as diagnostic failures or oversights of the local medical doctor. By the time a student is through school, he is well aware of these status levels and also of his feelings of inadequacy in the over-all field of medical care. He is certainly not to blame for the decision he makes.

Upon completing my medical education I too was impressed by the lack of status of the rural physician. I too felt the apprehension and anxiety that accompanies the thoughts of finally meeting the test of actual medical practice. Although the anxieties have dissipated with experience, my concern over the status of the rural physician within the medical profession has increased. The role of the family physician or generalist, at this critical period in medical history, is ill-defined, and I feel that every effort must be made by medical educators and organized medicine to solve the problem.

I do not feel that the problem can be solved simply by the organization of generalists. If basic training for medical care is inadequate, then let's change the training. If good medical care is being compromised, let us clearly define the area of general medical family care, then prepare the man to do this specific job, so that he may go to it with the blessings and not the misgivings of his teachers, so that he may enter it with confidence and pride.

Raising the status of general practice

He should be exposed at some point in his training to general practice itself. Since 1937 Wisconsin has had a medical school plan whereby every student during the last two years of his medical curriculum must spend one quarter with a general practitioner. This practitioner, whose competency and willingness to teach have been established, takes the student into his home and office. Here he has an opportunity to see for himself the variety of cases seen by the rural physician. He is able himself to evaluate the quality of care given and becomes aware of the economic burden that medical care often poses for the family. He is exposed to the art as well as the science of medicine. He is in a better position to choose between specialty and general practice, and the exposure of every student to this plan helps keep the status of the generalist on its proper plane. Preceptor plans are becoming popular again in other schools and, I feel, should definitely be encouraged as one means of exposure to more ambulatory clinical material at the student level.

Other plans to accomplish this objective are being used in certain medical schools. One such plan is for a student to have one or two indigent clinic families for whom he is the family physician throughout his four years. These are encouraging signs of progress in this field.

It seems only right to me that our state medical schools, supported by the taxes of the rural as well as the urban population, should make a specific effort to graduate students trained to handle the needs of the rural as well as the urban communities, if their objectivies are to be justified. To do this, however, a basic change in the philosophy of our medical educators is necessary.

Advantages of rural practice

It has occurred to me that it might be made a prerequisite for all students gaining admission to state medical schools to agree to spend one or two years in general practice before specialization. This would serve to make a greater number of physicians available to rural communities; distribution would force this. Secondly, a greater number of physicians, even those who eventually specialize, would be made more aware of medical economics from the standpoint of the patient; and it would encourage the return of the doctor-patient relationship. One cannot possibly work at the small community level without being touched by the pathos and tragedy of disease and death, without soaking up a bit of

human sympathy, compassion, and understanding—these qualities which often are as important to our treatment of the patient as are the medicines we prescribe.

The exposure of the new physician to a rural community would not only accomplish the objectives I have just mentioned; it would also make evident certain basic truths about rural practice that would to a great extent counteract the misconceptions fostered during training.

For one thing, he will become convinced that he can provide good medical care in the rural community; that its provision is dependent chiefly on his own individual professional integrity, intellectual honesty, and personal diligence.

If he has served his community well, he will soon discover that he enjoys a degree of personal and professional status in that community that would be the envy of his colleagues in the city. He will also find that recognition of this status is often revealed in heart-warming ways that would find difficult expression in the city.

He will discover that financial security will arrive sooner to him than to the city physician. This is due to the fact that his patient capacity will reach its peak much sooner, and his percentage of collections will probably be higher, despite the fact that his fees will differ only slightly.

He will find that he is closer to cultural and recreational facilities than he thought he would be; and if some of these things are lacking, a measure of satisfaction may be gained by helping develop them.

May I re-emphasize however, in closing, that words expounding the rewards of rural practice will fall on nonexistent ears unless we can somehow meet the deficiency in the number of men available for general practice. Perhaps it is to you the farmer and the farm organization that we must look for the solution to this problem. Perhaps it is from your own ranks that we must draw the greater percentage of future doctors. As farm mechanization progresses and more farm children grow up and go into other occupations, let us encourage them — finance them if necessary — to go into medicine and its allied fields and bring them back home to meet the needs of rural medical care in areas with which they are familiar.

I realize that many of you here cannot change these things readily, but your mere presence speaks for your interest in medical care, and I hope you too may benefit from these impressions.

The theme of this Conference, "Meeting Challenge with Responsibility," is quite appropriate to many of the areas that I have discussed. I am looking forward to the time when we as physicians, along with you, will be responsible to the degree that this challenge to rural medical care will be successfully met.

Malnourished unseen

In many parts of the world, one may be misled at first sight by the good physiques of the people, but it is not unusual to find that life expectancy is short and mortality among children extremely high. The weak or malnourished are not seen walking down the roads and streets. Wherever malnutrition exists, it is always the children who suffer most. *Arnold E. Schaefer, Ph.D., and Frank B. Berry, M.D. U.S. Interest in World Nutrition. Pub. Health Rep. August 1960.*

Serious side effects from steroids

An important side effect of cortisone is its tendency to deplete the body's potassium stores while inducing sodium retention. All the steroids of the cortisone family tend to induce diabetes mellitus or to activate latent diabetes. The clinical manifestations of steroid-induced diabetes is severe enough to require all the preoperative and postoperative skill necessary to manage patients with this metabolic defect. *Eugene F. Traut, M.D. The Surgeon and Steroids. J. Internat. Coll. Surgeons. September 1960.*

Ocular, Anatomic, and Physiologic Changes Due to Contact Lenses

C. J. Black, M.D., *Elmhurst*

A contact lens is a prosthesis. Its function is to replace by its own convex surface that of the anterior surface of the cornea where most of the refraction of the eye is accomplished. Since other types of prosthesis can cause changes of the anatomy they approximate, one would expect the same of contact lenses. It is naive to think contact lenses would not alter the physiology and the anatomy of so highly a specialized tissue as the cornea. Then if these plastic prostheses are to be worn successfully with no pathologic changes, an adaptation of this specialized tissue to its environment must occur.

What occurs during the successful adaptation of the cornea to the lens?

What happens to the anatomy and physiology of the cornea on less successful cases?

I will review some significant factors.

To maintain corneal transparency, corneal metabolism must be maintained. Proper corneal metabolism is dependent on adequate precorneal fluid circulation, adequate limbic vascular circulation, and proper maintenance of aqueous humor properties, as well as the maintenance of the integrity of the epithelium against mechanical forces of the pressures and motion of the lens that occurs on blinking, particularly at the apposition of the contact lens and the cornea.

Kinsey[1] claims, "The state of detergence seems to be associated with corneal transparency since after an increase in hydration, as for example, that which occurs following damage to the epithelium or endothelium or after reversal in the osmatic pressure relations between the inside and the outside of the cornea, the cornea becomes cloudy, eventually opaque."

Haze and halo formation on wearing a contact lens are thought to be due to the imbibition of fluids, particularly by the mucoid material that surrounds the collagenous corneal fibers of the stroma, causing a swelling of the cornea, separating the lamellae, and probably changing the refractive index of the intrafibrillar fluid.[2]

Ascher[3, 4] claims that aqueous veins of the sclera under the scleral contact lenses could be blocked by pressure at 3 and 9 o'clock where the veins are most prevalent, resulting in halo formation. Relief of pressure of the lens over these areas by indentations fabricated in the scleral lens flange resulted in correcting this. Air bubbles also had a similar effect.

Huggert[5] reported a rise in intraocular pressure when corneal scleral lenses were worn.

Langham,[6] and Smelser, and Ozanico[7] found that absence of atmospheric oxygen altered the metabolism of the cornea.

Smelser and Ozanico[8] fitted guinea pigs with scleral lenses and found the corneas had haze and halo formation. These corneas had a thicker stroma, and, most important, the glycogen content of the epithelium was reduced. The authors concluded, "Glycogen depletion of the corneal epithelium was a striking phenomenon and occurred concomitantly with the development of corneal haze and edema."

In essence, it is possible that metabolic processes are involved in fluid regulation; certainly the above experiment would imply that anaerobic conditions under a contact lens use the glycogen stores more rapidly to a point of exhaustion followed by imbibition of fluid.

Hirano[9] did similar work but with corneal lenses (not scleral) on rabbits. He separated his experiments as follows:

Experiment 1. "Relationship of wearing time and corneal changes"

No adaptation period was used; the lenses were merely placed on the eyes. The range of wearing time was from three hours to ten days.

Clinical results:

6 hrs.—Discharge and injection of the bulbar conjunctiva.

Presented at the annual meeting of the ISMS in May 1960.

12 hrs.—Ciliary injection.
24 hrs.—Corneal luster was gone and haze was noted.

Histologic results:
12 hrs.—Corneas were intact and limbal vessels were dilated.
24 hrs.—A widening of intercellular spaces and disarrangement of cells of the corneal epithelium; stroma thickened; iris vessels dilated; glycogen changes were limited to the epithelium and depleted only under the area covered by the lens in 24 hours; ribonucleic acid and amino acid of the protoplasm showed a slight change only after 24 hours; DNA was intact.

Experiment 2. "Recovery Process"
No adaptation period was used: lenses were worn for 12 hours. Lenses were removed, and after various periods of time the eyes were autopsied.

Results:
3 hrs.—Glycogen stores began to return, and all signs of conjunctival injection and discharge and ciliary dilatation were gone.
12 hrs.—Glycogen stores were back to normal.

Experiment 3. "Effect of Habitual Wearing"
Rabbits' eyes were allowed to slowly adapt to the contact lens as in humans. It took four to five weeks to reach a 12 hour daily wearing time.

Results: When using the P.A.S. staining technic for glycogen, no changes seem to occur. In five weeks, histologic examination revealed no changes. This would imply that by a definite procedure of slowly increasing the wearing time of contact lenses, changes during adaptation can occur in the cornea that will permit them to be worn with little evidence of corneal physiologic disorganization.

In summary, the following can be inferred: The epithelium must remain intact or hazing and halo occurs. A proper glycogen reserve must be maintained (1) by proper precorneal fluid circulation, as it is necessary that no anaerobic situation occur beneath the contact lens, and (2) by adapting the cornea slowly to its new environment. Above all, the corneal limbic vascular plexus must not be impeded by pressure applied by the contact lens.

Causes of ocular changes

The manner in which the bearing surface of the inner surface of the contact lens approximates the anterior surface of the cornea is significant. Corneal contact lenses do not entirely float on tears but do have areas of bearing where they touch the cornea. The lenses never remain stationary but on blinking move in a linear fashion across the eye as well as rotate in a circular fashion. This motion in conjunction with the location of and the total area of approximation of the lens on the eye will determine whether or not and where epithelial disorganization will take place.

Another significant factor that causes ocular changes is the manner in which precorneal fluid flow is maintained, as well as interference with the limbic vascular flow or venous flow of sclera. The manner in which the bearing surface of the inner surface of the contact lens approximates the anterior surface of the cornea determines the degree of disorganization of the elements of the epithelium.

Epithelial changes can be relatively minor, limited to only intermittent stippling as evidenced by a few pin-point, grayish areas occurring only at the end of the day. Or there may be more evidence of disruption in an unusual amount of stippling. Occasionally on prolonged wearing one may see a grayish speckling of the cornea that does not stain with fluorescein, possibly a hyperkeratosis with no clinical symptoms. Irregular mottling of the surface epithelium and abrasions may also occur.

Stromal changes may vary from none to an increase in translucency with measurable change in swelling as per the use of a pachyderm.

Conjunctival changes also may vary from none to chronic injection of the perilimbal vascular plexus usually associated with chronic stippling. Initially, of course, on placing the lens on the eye, particularly during the adaptation period, there is bulbar conjunctival injection. In addition, a palpebral conjunctival injection with a red linear area 1 to 2 mm. from the margin of the upper lid may be seen as a result of the trauma caused by the edge of the lens.

Precorneal fluid changes cause ocular changes. There is, of course, initial tearing which disappears. Chronic tearing usually is indicative of an improper curvature of the inner surface of the lens. The lens has too flat an inner radius of curvature. The changes are from none to a shift to the alkaline side when abrasions occur. This shift can be checked by the micropipet technic and a Beckman pH indicator. By this technique, minor stippling does not show a shift of pH. Occasionally an increase in cellular or formed elements may occur in the fluid in certain poorly fitted patients. These lenses are usually but not necessarily steep lenses (too sharp a radius of curvature); they may be poorly fabricated with improper blending of curves of the inner surface of the lens. Micro-bullae located in a group usually are pathognomic of poor precorneal fluid circulation. In some instances the lids tend to be puffy with thick edges.

Anatomical changes involve the general curves of the front surface of the cornea. They may be unchanged, as measured conventionally by the keratometer, or warped out of shape. Studies on fitting different types of fabrication of the inner surface of the lens gives one the impression that the corneas and surface tend to conform to that of the inner surface of the lens. Highly astigmatic corneas are forced to more or less conform to the inner surface of the lens. Because of the irregularities of the highly astigmatic cornea, precorneal fluid flow is more easily obtained.

Flat lenses (i.e., those fitted with a greater inside radius of curvature than that of the center of the cornea) tend to warp the cornea, making it flatter and the patient more myopic. They cause stippling or mottling at 12 o'clock or occasionally at the center of the cornea with conjunctival injection photophobia as well as halo and hazing. If the process is allowed to continue, the abrasions become more extensive, and an increase in translucency of the stroma occurs causing greater reduction in visual acuity. The irritation at first is annoying as a burning and stinging sensation followed by an increase in tearing and photophobia. Later the eye becomes painful, more so on the removal of the lens. The changes due to a flat lens are mechanical in that the motion and pressure of the lens are transmitted to the corneal surface over an inadequate area. In essence, there is an improper bearing surface relationship between lens and cornea; improper precorneal fluid flow is not the problem.

Steep lenses (i.e., those fitted with a shorter inside radius of curvature than that of the cornea) tend to warp the cornea making the areas steeper. Poor precorneal fluid flow results in micro-bullae formation near the center of the lens. Stippling occurs over the bearing area occasionally, and it may be merely a small amount appearing as a crescent-shaped area, or it may be in oval or nearly ring-shaped areas located paracentrally. The usual sequence of conjunctival injection, photophobia, burning and stinging, hazing, and finally pain and opacification occurs if this relationship is allowed to continue.

Corneal sensitivity changes occur. Patients have an alteration of sensation. They experience no pain on removal of the lenses, yet may have a severe punctate keratitis caused by overwearing their lenses during the acclimation period. In about two hours a pain occurs with blepharospasm and photophobia that is severe enough to necessitate treatment. Prior to experiencing the pain they have the ability to feel a foreign body under the lens and do respond to touch. This would imply that a parasthesia occurs. Placing a contact lens so that its bearing area is on the corneal limbic vascular plexis results in a dramatic conjunctival injection and a rapid (in a few hours) haze formation. Foreign bodies and hot temperatures annoy the contact lens wearer. Because a contact lens patient may appear in the office with no signs of disorder does not preclude the fact he may have moments when some transient stippling or conjunctival injection occurs. Like denture patients, contact lens patients do have their good and bad moments.

Summary

Patients wearing contact lenses may experience varying degrees of corneal disruption. Chronic corneal physiologic changes are probably (1) an adaptive alteration of carbohydrate metabolism and ribonucleic acid metabolism enabling the cornea to live in its new environment, and (2) an alteration of sensitivity of the cornea. The anatomical shape of the cornea may be altered in so far as its radius of curvature is concerned as measured by the keratometer. Other chronic changes as evidenced clinically are none to occasional transient, small areas of stippling that stain with fluorescein, or nonstaining areas of a grayish stippling that give the epithelial surface a speckled effect.

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Cholesterol Synthesis, Diet, and Species

GEORGE E. COX, M.D., AND C. BRUCE TAYLOR, M.D., *Evanston*

THE CASUAL relationship of excess plasma cholesterol to atherosclerosis behooves investigators to determine the sources of plasma cholesterol, which knowledge might greatly facilitate control of plasma cholesterol levels. In considering this subject, three questions can be asked which may superficially appear to be but different statements of the same problem; they are sufficiently distinct and relevant, however, to justify a closer look. (1) What are the sources of plasma cholesterol? (2) What are the sources of the excess cholesterol in cases of hypercholesterolemia? and (3) Why is the plasma cholesterol elevated in cases of hypercholesterolemia? Question 3 would seem to be more relevant to the control of hypercholesterolemia. However, no explanation has yet found universal acceptance, and the numerous, poorly understood areas in lipid metabolism engender a feeling that this question is likely to require a great deal of additional study. The answer to question 2 would surely help to answer question 3, but no experimental design has even been suggested for clearly and definitively answering question 2. Question 1 is doubly attractive in that it should contribute to the ultimate solutions to 2 and 3, and it is susceptible to fairly precise study by several different experimental techniques.

The sources of plasma cholesterol (question 1) were determined first for the dog and the rat. In both species the liver was shown to be pre-eminent over other tissues in *in vitro* comparisons of cholesterol synthesis rates. In both species, *in vivo* measurements of the uptake of labelled acetate into plasma cholesterol demonstrated the pre-eminence of liver over other tissues as a source of plasma cholesterol. Later studies by other techniques have consistently confirmed the original conclusions that in low cholesterol-fed rats and dogs the liver is the major source, and other tissues a minor source, of plasma cholesterol[1,2]. The same studies in rats, dogs, rabbits, and monkeys demonstrated and confirmed the rapid suppression of endogenous cholesterol synthesis after ingestion of cholesterol. In this phenomenon also, the liver demonstrated pre-eminence, with little or no such homeostatic response by other tissues.

Gradually but definitely the conclusions of the dog and rat data were assumed to be directly applicable to the human. Assumptions and calculations, supported by no specific experimental data, fostered the notion that the human liver synthesizes cholesterol at the rate of about 2 Gm. per day, and therefore — via the homeostatic suppression of its cholesterol synthesis — can compensate for absorption of dietary cholesterol up to about 2 Gm. per day. This is more cholesterol than most Americans get in their food; dietary cholesterol, therefore, came to be regarded as insignificant.

More recently, specific data have become available from studies on the sources of plasma cholesterol in humans. Several years ago, *in vitro* tissue-slice incubation studies (on viable surgical biopsies of liver from patients undergoing elective surgery for non-hepatic conditions) indicated a low rate of cholesterol synthesis in human liver, in the range of 0.1 Gm. per entire liver per 24 hours[3]. However, there has been no adequate comparison of the relative cholesterol synthesis activity, *in vitro*, of liver and other tissues. In the light of several different studies demonstrating a continuous synthesis of plasma cholesterol in humans on the order of 2 Gm. per day, it was suggested that the over-all extrahepatic tissues of the human must greatly exceed the liver as a source of plasma cholesterol. As measured by the same techniques in each species, hepatic cholesterologenesis is much lower in humans than in dogs and rats.

Somewhat later, a study of the influence of diet upon the uptake of labelled acetate into plasma cholesterol failed to demonstrate any

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From the department of pathology, Evanston Hospital Association.

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significant and consistent suppression of acetate uptake by a cholesterol-rich diet[4]. This was tentatively interpreted to support the concept of liver being a minor source of plasma cholesterol synthesis in the human, such that the over-all acetate uptake curve might be little affected by suppression of hepatic cholesterologenesis. The same technique simultaneously applied to dogs and to humans yielded strikingly different data, inasmuch as 90 to 95 per cent suppression of acetate uptake was obtained by cholesterol feeding in the dog.

A preliminary report of a study still in progress described another evidence of a marked species difference between dogs and rats versus humans[5]. In this study, cholesterol-rich diets labelled with 4-C-14-cholesterol, using egg yolk as a natural vehicle, were fed to healthy, active adult volunteers. The egg yolk diet supplied enough cholesterol to suppress hepatic cholesterol synthesis, if the liver in man undergoes homeostatic suppression in a fashion similar to lower animals. Radioassay of serum cholesterol permitted direct calculation of the amount of serum cholesterol coming from the diet. The amount from the diet should be equal to the amount of serum cholesterol that would come from the liver if none were coming from the diet. This amount was found to be between one-fourth and one-third. Presumably then, at least three-fourths of the plasma cholesterol of these human subjects was derived from cholesterol synthesis in extrahepatic tissues.

Similar egg yolk diets fed to dogs rapidly replaced as much as 90 to 95 per cent of the plasma cholesterol with dietary cholesterol, indicating a residual extrahepatic synthesis of plasma cholesterol amounting to only 5 to 10 per cent of the total plasma cholesterol. Thus, this technique confirmed previous studies in dogs in which the liver was found to be the normal major source of plasma cholesterol; it also confirmed the recent studies in humans which demonstrated a great species difference between the human and the dog and rat.

Summary

In summary, there is now reasonably direct and specific data from three different experimental techniques supporting the concept that in man the liver supplies a small part of plasma cholesterol. The extrahepatic tissues supply the major part, and diet is capable of supplying a significant part up to one-fourth or one-third of the total amount. The difference between these conclusions and previous conclusions from data on dogs and rats points up the danger of extrapolating data from lower animals to humans. The low rate of hepatic cholesterologenesis in humans may also be responsible for the failure of several cholesterol synthesis inhibitors which in animal studies demonstrated considerable activity (usually in liver tissue) but which in *in vivo* studies in humans generally have not proven to be effective. Apparently, for cholesterol synthesis inhibitors to be effective in the human, they must act in extrahepatic tissues rather than primarily in hepatic tissue.

Further, it should be emphasized that merely demonstrating that plasma cholesterol receives cholesterol via both endogenous synthesis and absorption from foods (answer to question 1) does not in any sense define either the source of the excess cholesterol (question 2) or the reason for the elevation of plasma cholesterol (question 3) in hypercholesterolemia.

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A man too busy to take care of his health is like a mechanic too busy to take care of his tools.—*Spanish Proverb*

Postoperative Oliguria

COOK COUNTY HOSPITAL

MODERATOR:
Robert Baker, M.D.
Associate Director of Surgical Education, Cook County Hospital

DISCUSSANT:
Lionel Bernstein, M.D.
Assistant Director of Research, Hines Hospital; Assistant Professor of Medicine, University of Illinois College of Medicine; Attending Physician, Cook County Hospital

DR. ROBERT BAKER: The subject of this week's conference is postoperative oliguria, an always difficult problem in surgery and one whose solution taxes the resourcefulness of surgeon, internist, and biochemist alike. For purposes of our discussion I would define oliguria as decreased urinary output of any degree and for any reason. Its causes will be brought out in the course of the presentation.

Our discussant is Dr. Lionel Bernstein, a former County Hospital intern and resident, whose particular interest lies in the field of fluids and electrolytes. Dr. Bernstein is called upon to manage these problems frequently, and we shall endeavor to draw upon this experience extensively in the case analyses. Postoperative oliguria is an always perplexing therapeutic problem; its general aspects will be dealt with in an attempt to establish logical principles in the approach to these cases.

Case 1.

DR. WILLIAM REED, surgical resident: This 58 year old, white male was admitted to the surgical service of the Cook County Hospital with the chief complaint of bleeding per rectum and the passage of bloody mucus for five months. He had lost 10 pounds in weight, and his family said he looked "washed out." His medical history revealed only cholecystectomy for gallstones three years previously.

Physical examination revealed a pale, somewhat undernourished white male whose blood pressure was 116/70 mm. Hg, pulse rate 80 per minute and regular. Examination of his heart, lungs, and abdomen was negative. On rectal examination there was a friable, hard mass at the tip of the examining finger; this mass was immobile, seemed intraluminal, and was located on the posterior and right lateral rectal wall. A biopsy was reported as adenocarcinoma.

Urinalysis was negative, specific gravity 1.024. The electrocardiogram and intravenous pyelogram were normal. Hematocrit was 26 per cent, red blood cell count 3,200,000, white count 9,600.

The patient was given 500 cc. of whole blood daily for the two days prior to surgery, and 250 cc. of packed red cells the morning of surgery. Just prior to being taken to the operating room his hematocrit was 37 per cent. During surgery there was considerable bleeding from the pelvic and presacral veins, and 1,500 cc. whole blood was infused. Despite this, the patient's blood pressure dropped during the procedure to 40/0 mm. Hg; this was raised with vasopressors and rapid infusion of whole blood, and at the completion of surgery it was 90/60 mm. Hg. In the recovery room his blood pressure fluctuated between 80/40 and 100/60 mm. Hg for six hours, the pulse rate from 80 to 100 per minute. Postoperative hematocrit was 42 per cent, and urine output during the first six hour period was 60 cc. In the subsequent 18 hours the blood pressure

ranged from 90/60 to 110/70 mm. Hg. The patient's skin was warm and dry, and the color was good. He was given 2,000 cc. of 5 per cent dextrose in water during the first 24 hours. His total urine output in the 24 hours was 260 cc., specific gravity 1.016, trace of albumin, 3 red and 2 white blood cells per high power field.

DR. BAKER: I thought, before we gave more information, we would ask Dr. Bernstein to discuss the problem of the patient who has had a difficult pelvic surgical procedure in which ureteral injury is a possibility, and whose urine output is diminished. The question in these cases usually is whether there was ureteral injury, unilateral or bilateral. Excluding this, what factors would be of importance in deciding whether this oliguria is temporary and of adrenal or pituitary origin, secondary to the stress of surgery, or due to nephron injury sustained during the surgery? This particular patient was in relatively good condition except for his oliguria. Our question is what to do next.

DR. LIONEL BERNSTEIN: One starts out with a patient who has normal renal function. The ability to put out a 1,024 urine on random specimen, as this patient did, indicates a minimum of 60 per cent of normal function; so we can assume ahead of time that any subsequent azotemia is not related to chronic renal disease. We do not often have such good information preoperatively. Very often one has only the initial urine, and if the specific gravity happens to be 1.010, you have no idea as to the relative degree of function remaining. It must be pointed out that high and normal specific gravity have the same meaning: There are a good percentage of normal functioning nephrons still present in those kidneys, and we can therefore definitely exclude a significant decrease in the numbers of nephrons due to prior renal disease. It is then much simpler than when one has to consider the possibility of acute malfunction superimposed on a decreased number of nephrons due to pre-existing, longstanding renal disease. The fact that there are negative urines fits in with the concept that this is a "normal renal individual."

The first question is this: With a transient hypotension, what is the likelihood of this being acute anuria? Everyone is alert to this possibility. To me the important thing is that you do not need this kind of blood pressure drop to have acute anuria, because *cardiac output* is the important factor in the genesis of anuria.

If we assume the cardiac output to be 100 per cent of normal before surgery, we can follow it during the course of surgery. If we find the patient has a progressive fall in cardiac output due to blood loss or trauma or for some other reason, then the blood pressure gradually falls. The kidneys are partaking in this decrease too; but they are not partaking in it in a proportionate manner because, as soon as a significant hypotension develops, what had been a normal renal blood flow is now going to be low as blood is shunted to a more crucial area, for example, heart or brain. With decreased cardiac output and hypotension, the renal blood flow falls rapidly. The important thing is that the pressure may be maintained at a near normal level, despite the fact that there is a marked reduction of kidney circulation. Had there not been good vasoconstriction in the renal bed, the pressure might have fallen much more precipitously. Even in those instances where there is no clear evidence of shock, any prolonged, serious surgical procedure is a potential cause of acute anuria or lower nephron nephrosis.

In essence, to me the presence of acute anuria is indicated when there is a persistent reduction in urinary output following surgery. For how long? We are told this man put out 60 cc. in six hours. That is oliguria, but it is not of long enough duration nor severe enough to reach the conclusion that a renal insult has actually been sustained. This may still be a prerenal mechanism with shunting of blood to other areas to maintain pressure but without relaxation of the constriction. This does not necessarily imply renal tubular damage.

The thing I think most important about that 60 cc. of urine is the specific gravity. It is likely that this was fairly concentrated, and I do not mean 1.028; I would mean something like 1.018 or 1.020. This is enough to indicate that it is not acute anuria because in that case there would immediately be a change to a 1.010 specific gravity, and perhaps down to 1.008 or so. But when one is told subsequently that there is a 1.016 specific gravity, then I think that in itself makes it most unlikely that this is acute anuria. Therefore, we can continue to treat this individual as one who needs adequate fluid and colloid replacement, and with the passage of enough time, whatever

this change is which caused postoperative oliguria will simply end and urinary function will return. If, after 24 hours, the patient is not putting out urine and you are convinced that there is no reduction in blood volume and cardiac output, then you must re-evaluate the case.

Again I must return to the fact that blood pressure per se is not a good index of competency of circulation. You are more interested in the cardiac output. If it falls, kidney vasculature will constrict to try to maintain pressure. What happens is that the so-called less crucial area gets into trouble if this condition is prolonged. The fact that you have a pressure of 110/80 mm. Hg does not mean that the patient is not in a precarious shock condition. If he has marked reduction in cardiac output with extreme peripheral constriction, then the pressure is not accomplishing the essentials; there is little perfusion of certain organs, and the pulse rate is probably a much more important index. If you obtain a blood pressure of 110/80 mm. Hg and a pulse rate of 70 per minute, you can be confident that the condition is good, so far as cardiac output is concerned. But with the same pressure and a pulse of 140 per minute, you know difficulty exists. When you superimpose fever and pain, however, you get borderline states where tachycardia is not related to cardiac incompetence; so you use the urinary output as a gauge of what the systemic circulation is doing.

You can answer these questions only with the passage of time. In this special instance I think the presence of a specific gravity of 1.016 with a trace of albumin and red and white blood cells is not uncommon with any surgical procedure. These are not specific changes, and the specific gravity of 1.016 would indicate to me that it is not an acute anuria; I would feel that if the patient is kept hydrated, within 24 hours he will begin to put out more urine.

DR. BAKER: Do you think a volume of 260 cc. is alarmingly small? We teach that 400 cc. is a minimum amount for the first 24 hours postoperatively, and that the house staff should become alarmed if it falls below that figure.

DR. BERNSTEIN: That is not uncommon.

DR. ROBERT J. FREEARK, director of surgical education: Is specific gravity misleading with regard to renal function? For example, a patient with good renal function was severely dehydrated and in the face of this had a specific gravity that was only 1.010 but on final hydration was restored to 1.025.

DR. BERNSTEIN: This happens and I would explain it this way: We recognize that in principle there are two kinds of prerenal azotemia. We know that there is equilibrium of kidney function if the sum of the output of the nephrons equals the end products of metabolism. If 90 per cent of the nephrons are destroyed by some kind of renal disease, then, progressively, the amount of nitrogen waste being excreted is decreased so that the excretion is less than the formation of nitrogen, and the blood level will rise. As it rises, each of the remaining nephrons functioning excretes more, because if you double the blood level you double the nitrogen excretion, and then you get equilibrium again. Blood nitrogen keeps going up until there is a state of uremia. In terms of nonprotein nitrogen (NPN) it does not make any difference whether you destroy 90 per cent of the nephrons or whether you shunt them out of circulation. If you have a situation of prolonged dehydration in which the vascular constriction in the renal bed has markedly decreased the renal blood flow filtration rate, then many nephrons may not be working. The rest may be working in a fashion quite similar to that seen in chronic renal disease, and they put out urine of 1.010 with no really infallible way of differentiating from the urine of renal azotemia. When you rehydrate this individual, you return the 90 per cent of the nephrons to function and hyposthenuria no longer exists.

The second situation is seen much more commonly. If the filtration rate of each of the nephrons is reduced to 10 per cent of normal, the effect is the same as destruction of 90 per cent of the nephrons. Under these circumstances azotemia occurs because the marked reduction of all function of all nephrons is such that the total output is less and the NPN goes up. That is explained by the small amount of fluid being filtered, and there is then an excessive tendency of the nephron to retain water and sodium chloride. This concentrates the excreted urea and you get a small urinary output with a specific gravity of 1.038. You know that when you get a dehydrated patient the initial urine is commonly 1.038; normally, it is 1.022 or so. I would

suggest that there is a change and that highly concentrated urine occurs only with low filtration rate with large numbers of nephrons present. I would suggest also that a fixed specific gravity, which coincidentally is 1.010, is more commonly associated with a smaller number of nephrons, but that it does not matter whether the nephrons have been destroyed or shunted out of circulation. A mixture of these patterns will give urine in between. As long as the kidney is concentrating above 1.015, you are safe in assuming that the patient is not in acute renal failure.

DR. BAKER: In a patient such as this one we ordinarily give only dextrose and water the first 24 hours postoperatively. Would you object to a "water load" test of 0.9 per cent saline in an attempt to stimulate diuresis?

DR. BERNSTEIN: No. If you are considering a man who weighs 180 pounds and is in a normal state of hydration, who has minimal tachycardia attributable to the trauma he has had, whose tissue turgor is good and whose mucous membranes are moist, then he does not need anything other than water and glucose. However, if there is some doubt in your mind, give him some saline, perhaps 500 cc. This will not hurt the patient if he is normal. If he is a patient with cardiac failure, that is a different problem. But in a normal individual without evidence of heart disease, if you decide to give ½ to 1 liter of saline, it will not do him any real harm.

I want to point out that the fresh urine of acute oliguria will have a specific gravity of 1.010. When it is very scanty and heavy with blood and casts, you may get a false elevation. In this case there is no question in your mind about the pathology but you wonder whether you are measuring blood or urine. When urine goes down to 50 or 25 cc. in 12 hours it is, without question, an acute anuria.

DR. BAKER: The question has arisen as to whether solute will raise the specific gravity of urine. How much does a 4 plus glycosuria raise the specific gravity?

DR. BERNSTEIN: You can raise it from 1.010 to 1.014 or so. You remember that urines of diabetics or patients in uremia are still in a range close to 1.010. Albumin will raise the specific gravity to the same degree.

DR. BAKER: Do you think that systemic sepsis or allied conditions will result in acute renal failure of the lower nephron type?

DR. BERNSTEIN: I think there are a number of things, each of which may be enough to cause acute anuria, which are very common occurrences. It is particularly common with medical patients who have severe illnesses such as pneumonia or pancreatitis. The other complicating problem is that it is not rare to have an acute oliguria without oliguria; in other words, an individual may develop this same condition, but instead of putting out 200 cc. he puts out 800 or 1,000 cc. a day. Thus the diagnosis of acute anuria is not made because he is not oliguric. However, functionally he is doing everything that the patient with a 200 cc. output is doing. He has a progressive rise in NPN which gradually goes down, and eventually he returns to normal function. If his NPN had not been measured, you would not have been aware of the renal malfunction. In other words, his volume is about normal, but the kidney cannot concentrate, and therefore excretion is diminished.

DR. HAROLD B. HALEY, associate attending surgeon: We believe that acute renal insufficiency is apt to be produced in surgical cases and in patients in labor in the presence of free hemoglobin pigment and that this is an important factor. Here is a patient who had a total of six transfusions, and who may have free circulating pigment to complicate the situation.

DR. BAKER: Free hemoglobin secondary to intravascular hemolysis is probably the commonest nephrotoxin.

DR. BERNSTEIN: There is no question that hemolysis is a problem. It simply adds to the possibility of oliguria occurring.

DR. BAKER: We are apt, erroneously, to assume that a patient with no urinary albumin or sugar and normal blood urea nitrogen (BUN) is a suitable condidate for surgery. What is the ideal preoperative work-up from a renal standpoint?

DR. BERNSTEIN: If it is an elective surgical problem, then you probably have adequate time to make a few simple studies. With a normal BUN and a urine concentrated to 1.020 or more in a random specimen, you are safe in assuming that the individual has 50 per cent of renal function, probably more; such a patient should

tolerate surgery without difficulty. Phenolsulfonephthalein excretion is a good confirmatory test.

DR. FREEARK: What if the specific gravity is 1.015 on random sample?

DR. BERNSTEIN: This may occur in a patient who on detailed study has a urea clearance of 20 per cent of normal function with normal BUN but who is about at the point where it will not be normal if there is more reduction in renal function. This is an individual who in terms of his ability to tolerate surgery is no different from anybody else, but the thing that is different is that he will not make his own personal adjustments to water and salt intake and excrete appropriate quantities as a normal individual will; so he has to be managed more carefully. If he gets dehydrated, he cannot resorb sodium and chloride and pours these out in the urine. He has salt-losing kidneys, despite the need to retain it. The normal individual who is dehydrated and is not given saline is no problem, because in a short time he puts no sodium out in his urine. A person with renal insufficiency cannot do this; he continues to lose salt, and therefore water, and thus makes himself more dehydrated. Such a person has to be watched more carefully. If this situation is complicated by hypertension or heart failure, you have to evaluate the individual on the basis of the severity of the systemic disease.

I might say that from the urinary electrolytes alone you can draw few conclusions. But if a person is on a low salt intake and his urine is rich in sodium, there is something wrong because sodium should be reduced to almost nothing. If by surgery and postoperative suction you have created a situation where the patient is not getting sodium for several days but is still putting out urinary sodium, this also has great significance. It may indicate renal insufficiency. The point I want to make is that the presence of a certain amount of sodium in the urine does not mean anything unless you know the person's prior intake.

DR. FREEARK: I have seen two patients who were thought to have bilateral ureteral obstruction following surgery and in both there was some postoperative urinary output; it was not the abrupt cessation one would expect. There are several reasons why this occurs: (1) There may be some residual urine in the bladder before the ureters were ligated, or (2) a degree of bladder "sweat," or secretion from the bladder mucosa, or urethral glands, and (3) in the recovery room the patient is found to have only 10 or 20 cc. of urinary output, but the personnel on the ward record it as 100 or 200 cc.

In this patient I think the surgeons felt sure the ureters were free, and I think the results of devascularizing the ureters are usually not apparent for a few days. Ureters that are devascularized will transport urine for a time, and then slough, so that a total anuria will not result from stripping the ureter.

If, however, there has been ligation, there are some alternatives from the standpoint of diagnosis, and the situation becomes delicate. Primarily, your first thought is that you don't want to alarm the patient. Therefore, you get an intravenous pyelogram. Unfortunately this will not always demonstrate ureteral block. Another alternative, a more direct one, involves referring the patient to the urologist who, feeling that the patient is in bad shape, will do a nephrostomy and divert the urine. Before nephrostomy he most likely will want to cystoscope and retrograde such a patient. This would be my first choice of diagnostic procedures if there is strong suspicion of ureteral injury. You simply have to be aggressive, return the patient to the operating room, and if a competent urologist cannot pass a retrograde catheter you must assume that the ureters are interrupted.

Opinions differ as to whether you would attack the ligated portion directly or do a proximal diversion of the urine. The general surgeon prefers to go back in and see where the pathology lies, deligate or repair, and treat it definitively. The gynecologist and perhaps the urologist prefer to divert the urine proximally by nephrostomy tube because (1) many times the ligatures are of catgut, and in the 10 days it takes to resorb, continuity will be restored without having to go back in; and (2) if the ureter has been injured, it means that the anatomy was distorted, and reoperation would be hazardous and sometimes unrewarding.

DR. BAKER: As Dr. Freeark implied, no operative procedure in the face of bilateral ureteral interruption is satisfactory. The essence of these catastrophes is prevention. We always insist that our residents visualize one or both ureters in

pelvic dissections prior to completing the procedure.

An intravenous pyelogram preoperatively is of value in all colon and pelvic surgery, not only because it serves as a renal function test, but because it will show gross ureteral displacement, by a neoplasm for example.

Case 2

DR. LEON STARKMAN, surgical resident: A 64 year old Negro male, admitted to the surgical service because of cramping abdominal pain of six hours' duration, without vomiting, was found on physical examination to have slight abdominal distention, hyperactive, high pitched bowel sounds, and a well healed old right paramedian appendectomy incision. His blood pressure was 190/110 mm. Hg, and a grade II soft systolic murmur was present over the precordium. He had been treated on this service five weeks previously for similar symptoms, and conservative management had resulted in a spontaneous remission. At that time his blood pressure was 220/130 mm. Hg, and electrocardiogram revealed a healed myocardial infarct. The maximum urine specific gravity was 1.010, and 2 plus albuminuria was consistently present.

After three hours of intravenous fluids and preparation, the adhesions causing the small bowel obstruction were lysed. During the surgical procedure the patient's blood pressure ranged from 110/40 to 260/170 mm. Hg. Postoperatively, after 1,500 cc. of blood and 200 cc. of 5 per cent dextrose and water, norepinephrine was required to keep the blood pressure at 130/90 mm. Hg. His pulse rate ranged from 100 to 124 per minute. No urine was excreted in the first 24 hours following surgery.

DR. BAKER: I had the dubious distinction of taking care of this patient postoperatively and spent considerable time and effort in attempting to initiate urine output. There was not much question about what had transpired during surgery. The patient had been in the hospital previously with bowel obstruction which remitted, and we discussed exploration on an elective basis at that time in light of the fact that he was a poor risk; the attending surgeon felt we should leave well enough alone. Unfortunately, the patient reobstructed, but was operated on immediately.

His course during surgery was up and down, terminating in a definite down phase. The urine output was nil for 30 hours postoperatively. Thereafter, he commenced to put out small quantitives of urine, on the third day excreting 150 cc. with a specific gravity of 1.010, 4 plus albumin, and gross blood (see table). The output started to rise on the eighth postoperative day with 950 cc. and then fluctuated thereafter. Sodium at first was 125; phosphorus was very high. Carbon dioxide combining power was normal. The clinical course was one of relative shock for a period of two days, and the patient was maintained on Levophed®; blood pressure rose to 200/120 mm. Hg, where it remained. This patient never adequately diuresed, nor did he maintain output. His NPN was high throughout the course.

DR. BERNSTEIN: There are some things that are very difficult to reconcile in these chemistries (see table). The sodiums are in the same range, and yet the chloride goes down to 70. Fall in the chloride means there must be some other factor at work. You would expect the carbon dioxide to go up, but it did not do so. It suggests that there is something missing; actually, there has to be something in addition to make up the difference. When you have an NPN of this range, you expect the phosphorus and other things will add 10 mEq., but there are 20 mEq. not accounted for. The only thing that is suggested is that he had some ketosis. He could then have developed that amount of ketone bodies in the serum.

DR. BAKER: Could a laboratory error have made this difference?

DR. BERNSTEIN: There are too many determinations to assume that. When you get all these chemistries the purpose is to see if they jibe. If they do, assume they are correct. If not, some other factor is at play. This man was on suction, and the low chloride is probably due to that. But what were his kidneys doing? Immediately after surgery, he had an NPN of 59 and creatinine of 5.2. This was before he was in the acute, prolonged, dehydrated state of bowel obstruction.

You can estimate it this way: Suppose an individual has a normal NPN, and assume 100 per cent of normal function. Then if you take him to surgery and remove both kidneys, he has 0 per cent of renal function. But his NPN will not rise for some time, for if you have 0 per cent of

renal function that will have to be present for a certain period of time before the NPN becomes elevated. That is why a patient will have a normal NPN after surgery. It is only with time that is rises as more and more of these end products are poured into the body fluid and excretion is not occurring. A creatinine of 5.2 means that this man had to have renal insufficiency for some time *before* he came to surgery, because there was not enough time between surgery and those chemistries for the accumulation of NPN and creatinine. Therefore this occurred unrelated to the surgery. In the absence of an acute process, this is routine evidence of borderline renal function or early uremia. It indicates that the patient has only 15 per cent of normal function, 85 per cent having been destroyed by some chronic renal disease. So at this time the urine probably had a specific gravity of 1.010, and this should alert one to the presence of renal insufficiency. It does not always mean actual renal insufficiency, because if one of us drinks enough water to dilute our solids, we will have a specific gravity of 1.010. But consistent 1.010 is the evidence of renal insufficiency, and it means the individual has had destruction of all these nephrons; that he had only a borderline number working without any impairment from the surgical procedure.

Suppose now you superimpose a shock state on this renal structure. Initially, the patient will develop the same kind of response that a normal person does. His renal blood flow will be further reduced, and he will have immediate renal insufficiency, whereas the normal individual has to be severely dehydrated to reduce his function this much. In the normal person dehydration may shut out only 50 per cent of nephrons; but when a person starts out with only 15 per cent of function and you reduce renal flow by any process, then the filtration rate will go further down, perhaps to a point where only 5 per cent of the nephrons are working.

The other possibility is that the patient does have an actual acute anuria of the remaining nephrons. Those 15 per cent of nephrons don't know that the other 85 per cent are destroyed; so they respond in the same fashion as in a normal individual with resulting acute anuria. The patient's subsequent diuresis represents a very good urinary output; 500 cc. would be equivalent to a 4-liter output in a normal person, so I think that it is probable that this is prerenal azotemia superimposed on renal azotemia and that the fluctuation represents ability to get some response to therapy but it is not enough to overcome the azotemia. I would say that he must have had prior chronic renal disease.

When you have a patient like this you avoid surgery if possible. If it is necessary, proceed; but this is the kind of problem that is hard to manage because he does not have the flexibility to adjust his output.

DR. FREEARK: This man needed elective surgery in the first place. In any patient who has a potentially acute problem, it would be far better to do elective surgery, not done here, than to let him get into an emergency state.

DR. BERNSTEIN: That is true, but it is a matter of judgment. This patient was never a good surgical risk under any circumstances.

DR. BAKER: What is the significance of hyperphosphatemia? Does the phosphorus itself act as a toxin to the remaining nephrons or to other organs?

DR. BERNSTEIN: No. This is an end product of metabolism being formed more rapidly than it is excreted so that it accumulates. When high serum phosphorus occurs, a low serum calcium results; then the problem of tetany may be present, as sometimes occurs in uremia, but you do not get a pharmacologic effect as you do with potassium.

QUESTION: Can any therapy be directed toward reduction of renal vasoconstriction?

DR. BERNSTEIN: The appropriate treatment is directed toward the reduced cardiac output. That is the correct way to relieve the constriction. I expect also you may have some question about Levophed, which causes intense peripheral constriction and can reduce renal blood flow and aggravate the situation. This is the reason why epinephrine has not been used, because it was found to reduce the flow to given areas. There is no question that Levophed is of value, particularly in myocardial infarction.

DR. FREEARK: What is its value then with regard to the kidney?

DR. BERNSTEIN: Levophed will reduce renal blood, all other things being equal. But if an individual has no renal blood flow and you give him Levophed and the pressure goes up, he will

have some renal blood flow which he would not have had otherwise.

QUESTION: Your feeling is that this man is not in acute anuria, that he is putting out some urine. Would you push fluids to attempt to stimulate diuresis, and how much would you give?

DR. BERNSTEIN: You determine that by the urine output, because he cannot survive without a urinary output of 2 liters. You give him one liter a day, and he will go into uremia because he cannot put out enough nitrogen in the face of a fixed specific gravity. Without seeing the patient, it is a little hard to answer your question; but my attitude is to push as hard as you can because, if you do not give him fluids, he will die. If you do, and he drowns, he may die, but occasionally the patient will survive by diuresing. If you had not given this man saline, he might have died drier, but I don't think that is important. Caution and judgment must be applied, but I would have attempted to force him to diurese.

QUESTION: Besides the artificial kidney, is there any other method of treatment in a problem like this?

DR. BERNSTEIN: I don't know about the value of dialysis, in general. I would recommend the fluids that are deficient in that patient. If he has low electrolyte-containing fluids, then replenish with electrolyte-containing fluids. His reduction in renal blood flow probably means reduced extracellular fluid volume, so to give water alone will not help. Once you are convinced that the patient is adequately hydrated and he is still putting out small amounts of urine, then at that point you are forced to conclude that the patient is in acute anuria and a change in therapy is indicated. The specific therapy must be tailored to fit the patient.

Summary and conclusions

1. The hallmark of acute postoperative or posttraumatic renal failure is a falling urine volume despite accurate and adequate restoration of blood and body water volumes to normal. This must be differentiated from the physiologic response to trauma of moderate oliguria and water retention, and that of adrenal and /or pituitary origin.
2. The physiologic response to trauma (surgery, e.g.) involves a phase of posttraumatic antidiuresis of from 12 hours to four days. At its peak the urine output will rarely drop below 300 cc./24 hours; outputs of less than 300 cc. per day are usually on the basis of oliguria. A "water load" of 1,000 cc. 5 per cent dextrose in water given rapidly intravenously should result in an immediate increase in urine volume, despite physiologic antidiuresis, if renal function is adequate.
3. Some of the most important information required about a candidate for surgery is a preoperative assessment of renal function, or the detection of the presence of only "a few functioning nephrons." A patient who has only 25 per cent of nephrons functioning will have a normal BUN and creatinine.
4. The most useful screening tests, preoperatively, for renal function are:
   a. Ability of kidneys to concentrate to a specific gravity of 1.025 or more.
   b. PSP excretion (normal greater than 30 per cent in 15 minutes).
   c. Urea clearance (normal greater than 70 per cent).

   Adjunctive tests of screening quality are
   a. NPN or BUN, and creatinine
   b. Microscopic urinalysis
   c. Intravenous pyelography, where indicated
5. Total anuria, postoperatively, with no output, is the result of
   a. Unremitting shock
   b. Bilateral ureteral occlusion
   c. Severe transfusion reaction
   d. Embolic renal artery occlusion
   e. Acute, severe cardiac failure
   f. Removal of only functioning kidney
6. The vast majority of patients treated for acute renal insufficiency have suffered one of the following conditions:
   a. Surgery or trauma with hypotension
   b. Incompatible blood transfusion
   c. Obstetric complications with shock
   d. Severe desalting water loss
   e. Acute sepsis with prolonged hypotension
7. The causes of death in the first 5 to 7 days of posttraumatic renal insufficiency are
   a. Overadministration of fluid or blood
   b. Overwhelming infection

   The lethal triad in acute renal failure is
   a. Hyperkalemia (*continued on page 292*)

The View Box

FRANZ GAMPL, *M. D., Chicago*

This 60 year old, white female was admitted because of constipation and loss of appetite and weight (15 lbs. in the last 6 months).

The physical examination revealed a chronically ill patient with considerable abdominal distention. Pulse: 80/min. regular, blood pressure 124/60, respiration 18/min. regular.

Examination of the abdomen showed distention and tenderness in the right lower quadrant. The bowel sounds were hypoactive to absent.

A flat plate of the abdomen was made.

Diagnosis: Bowel obstruction?
Paralytic ileus?
Perforated viscus?
Acute pancreatitis?

Turn to page 294 for correct diagnosis.

This month we are introducing, as a new feature in The Journal, The View Box to allow our readers to test their own diagnostic acumen. Roentgenograms and copy are being prepared by Dr. Franz Gampl, attending physician in the department of radiology at Cook County Hospital.

Each month he will select a current case of general interest to the practicing physician. Some may be among those shown for one week at the entrance to the physicians' cafeteria at the hospital. While physicians there must wait until the following week for the correct answer to the diagnosis, our readers may turn to a designated page in each Journal and find it.

We hope you will enjoy this feature and profit from it. Comments are welcome. *The Editor*

Postoperative Oliguria (*continued from page 291*)

b. Acidosis
c. Hyponatremia (often dilutional)

The fatal event in this triad is cardiotoxicity, usually manifested as arrhythmia, then arrest.

8. Treatment of posttraumatic renal insufficiency consists of
   a. Restriction of fluid
   b. Control of infection
   c. Glucose, fat administration ("protein-sparing")
   d. Insulin and glucose
   e. Cation-exchange resins (ammonium-sodium cycle) to reduce potassium
   f. Gastric, peritoneal lavage
   g. Hemodialysis

"D.S.R."—A Diagnostic Triad Of Coloproctology

EDWARD J. KROL, M.D., *Chicago*

THE PRACTICE OF surgery, or any branch of medicine, requires the utilization and exploitation of every possible and practical means of diagnostic acumen and armamentarium to arrive at the cause of the patient's disability. Then, and then only, can proper treatment be instituted to lower the mortality and morbidity.

The following "Diagnostic Triad," "D.S.R."—namely digital, sigmoidoscopic, and radiographic examinations of colon, if followed in this respective order, will do much to lessen diagnostic errors and embarrassments and furnish more accurate and definitive diagnoses.

Review of current literature, American and foreign, reveals that a digital anorectal examination will lead to a proper diagnosis in 75 to 85 per cent of the carcinomas.

Sigmoidoscopic examination will give similar results in 80 to 90 per cent of carcinomas of the large intestine. Since roentgenographic examination in this area is highly inadequate, sigmoidoscopic examination is, therefore, the only means of diagnosing lesions high in the rectum and low in the sigmoid.

Colonic radiography should be performed by a competent and trained roentgenologist with the ability to recognize small lesions. This usually means the use of double enemas, thick and thin, (and both with air contrast). He must also examine every inch of the palpable colon fluoroscopically under pressure. Such examinations will lead to proper diagnoses in 85 to 95 per cent of lesions of the colon above the rectosigmoid.

Since the components of the "Diagnostic Triad of Coloproctology" are so readily available, there cannot be any acceptable excuses for their omission in part or in toto. Failure to utilize the triad, especially in the presence of rectal bleeding in the older age group, is to be condemned. Proper and adequate treatment cannot be instituted without proper and adequate diagnoses.

Department of surgery, Stritch School of Medicine, Loyola University, and chairman, department of surgery, Holy Cross Hospital, Chicago.

Delayed medication

Physicians want to see that their patients get medication as economically as is consistent with good quality. It is only proper that they should. Economy, however, is not the only consideration that must be taken into account in the treatment of illness by the use of drugs. The time element and the assurance of proper handling are, in most cases, considerably more important to the physician and the patient than the spurious 'savings' (which, if any, are small) that might be offered by the mail order mechanism. From the standpoint of the physician — and the patient — the mail order prescription schemes have some serious disadvantages about which he — and his patient — should be informed. *H. C. McAllister. Mail Order Prescription Services. North Carolina M. J. September 1960.*

The View Box—diagnosis and discussion (*continued from page 292*)

The diagnosis of perforated viscus is born out by the appearance of the walls of the large and small bowels indicated by arrows in the flat film. Large amounts of air in the free peritoneal cavity will separate the bowel loops so that not only the inner but also the outer wall can be visualized. This sign is diagnostic of free air in the abdominal cavity on a plain recumbent film.

Subsequent lateral decubitus films demonstrated a large amount of air in the abdomen.* A cecostomy was done for the perforated cecum, which was secondary to a large bowel obstruction caused by an annular carcinoma of the sigmoid. This carcinoma was resected in a second stage procedure.

*Lateral decubitus views should always be included in the radiographic examination of an acute abdomen. They are obtained by positioning the patient on his left or right side, the x-ray beam parallel to the table top.

Nervous in the service

Among the individual psychoneuroses, anxiety reactions are responsible for the greatest manpower losses, in duty days lost for medical reasons, from year to year. This study indicates that many inductees with anxiety reactions were able to complete basic and advanced training and serve successfully in the continental United States and in all major overseas areas with all branches of the Army in a wide range of individual military jobs. *Brig. Gen. T. C. Bedwell, Jr., USAF, MC. Peacetime Nuclear Weapons Incidents. U.S. Armed Forces M. J. Anxiety Reaction. September 1960.*

Kangaroo meat

Pennsylvania is making an effort to keep Australian kangaroo meat out of bologna and other foods for human use. The attorney general claims there is evidence that 1,000 tons of "unfit" kangaroo meat has been shipped into the state, and a 2½-ton import is under embargo in Philadelphia. Kangaroo meat does not come under the U.S. Department of Agriculture Meat Inspection Act. Pennsylvania claims the meat is not inspected, properly cleaned, or refrigerated in Australia, and is not identified as kangaroo meat in the label. *Signs and Symptoms. Pub. Health Rep. August 1960.*

CASE REPORTS

Duodenal Obstruction Due to Gallstone

RICHARD C. POWERS, M.D., AND CHARLES H. CARROLL, M.D., *Elgin*

THE TERM *gallstone ileus* usually refers to obstruction of the large or small bowel secondary to a gallstone which has passed into the bowel through a cholecysto-enteric fistula. The authors recently encountered a problem related to this process, somewhat different from the usual pattern, and this prompts the present case report.

Bartholin[1] is credited with the first description of perforation of the gallbladder with migration of the calculus into the small bowel; this report appeared in 1654. Courvoisier[2] subsequently collected 131 cases of gallstone ileus, three of which are listed as having been in the duodenum. Wagner[3] in 1914 collected 340 cases, nine of which were located in the duodenum. In 1958 it was pointed out[4] that less than 900 cases of gallstone ileus had been reported in the entire literature. It is apparent from these figures that the incidence of duodenal obstruction secondary to the presence of a large gallstone is uncommon.

In general the incidence of small or large bowel obstruction secondary to migrating biliary calculi is quite low, 1.5% in a series of 30,508 cases of bowel obstruction[2]. Just as the incidence of biliary tract disease is commoner in women, it has also been determined that gallstone ileus is two or three times commoner in women than in men, and the average age is 64.[2] The mortality is high, the rate in several collected series of cases being from 40 to 50 per cent.[1]

History

Present illness. This 67 year old, white male complained of a vague, upper abdominal fullness and sensation of distress of two weeks' duration, relieved intermittently by belching and by self-induced vomiting. The patient denied having abdominal pain. He felt that, in spite of the presence of a sensation of abdominal fullness, there had been no visible abdominal distention or bloating. Bowel habits had been normal, with the passage of stool and gas through the rectum every one or two days without difficulty. He had no jaundice, dark urine, or light stools.

The patient had had an operation for appendicitis about 30 years earlier, with drainage from the wound site for several weeks after the operation. His health remained good from that time until 10 months prior to the present illness. At that time he developed an acute small bowel obstruction which was relieved surgically by lysis of a specific adhesive band in the right lower quadrant of the abdomen, 18 inches above the ileocecal junction. Since the appendix was still intact, it was removed at that time. The remainder of the history was not significant.

Physical examination: The patient did not appear to be acutely ill when first examined. He was moderately dehydrated but had no unusual pallor or icterus. The chest had an emphysematous configuration but was otherwise negative, and the heart was normal. The abdominal wall was scaphoid and showed no evidence of distention and exhibited two well healed scars in the right lower quadrant without evidence of herniation. The bowel sounds were normal. There was no involuntary guarding of the abdominal musculature and only slight tenderness in the upper portion of the abdomen. There was no abdominal mass, and rectal examination was negative.

Appreciation is expressed to the Research Fund of the Sherman Hospital, Elgin, for aid in publication of this case report.

Hospital course: Scout films of the abdomen taken at the time of admission had revealed only the presence of a considerable amount of fluid and retained food in the gastric pouch, with considerable gastric dilatation. Initial therapy was directed at gastric decompression and recovery of fluid and acid-base balance. After three days of gastric decompression, upper gastrointestinal x-rays were made. There was an obvious retention of 98% of the barium within the stomach after four hours. A small amount of barium did pass through the pylorus into the duodenum, but it was difficult to interpret the findings at the time of this examination. In retrospect, it is possible to outline an ill-defined, space-occupying defect in this area (Fig. 1). Because of the unremitting pyloric obstruction, laparotomy was carried out five days after hospitalization. A huge gallstone was found in the first portion of the duodenum, completely obstructing the outlet of the stomach. A sinus tract of considerable diameter communicated from Hartman's pouch of the gallbladder directly into the first portion of the duodenum. The common bile duct was not directly visualized, but palpation failed to reveal the presence of other calculi.

Figure 1. X-ray showing retention of barium in stomach and a space-occupying defect in the duodenum.

The surgical procedure consisted of extraction of the calculus through a duodenotomy wound, insertion of a cholecystostomy tube for decompression of the gallbladder, and gastroenterostomy to insure nutrition. The postoperative course was uneventful until the ninth day when the patient inadvertently pulled out his decompressing cholecystostomy tube. Gastrointestinal feedings had been tolerated from the fifth postoperative day and removal of the tube did not materially affect this initially. On the seventeenth postoperative day, the patient experienced a transient episode of repetitive vomiting, which subsided after 24 hours. The further course was uncomplicated. Follow-up examination revealed primary healing of the wound without herniation, the cholecystostomy drain site had closed spontaneously without further problem, and the patient was without symptoms and in a good state of nutrition. In view of the absence of other calculi at the time of surgery, no further procedure is anticipated.

Comment

The diagnosis in this instance should have been made preoperatively, but, frankly, the thought never occurred to us. Rigler[5] described the classical diagnostic x-ray critera in 1941: (1) air or contrast medium in the biliary tree; (2) direct visualization of the stone or sometimes indirect visualization by contrast medium; (3) change in position of a previously noted calculus; and (4) roentgen evidence of partial or complete bowel obstruction. Re-examination of the pertinent preoperative x-rays, in view of the findings at surgery, reveal that three of the critera established by Rigler had been satisfied. Barium can be seen entering the fistula into the gallbladder, the calculus stands out clearly, and the gastrointestinal tract is obstructed at the duodenum. (Fig. 1). The enormous size of the calculus is seen in figure 2.

Numerous articles upon this subject have detailed the important features of management. As in most instances of illness occurring in the older age group, preoperative preparation and supportive care are important. In this instance, establishment and maintenance of fluid balance and acid-base balance were paramount, thus bringing the patient to surgery in optimum general condition. The early decision for laparotomy avoided further nutritional deficit. Surgical man-

Figure 2. Huge gallstone that obstructed duodenum. Bowel resection was unnecessary.

agement consists of removal of the stone and resection of that portion of small bowel with a compromised vascular supply. In the case of the present patient, it was felt that simple removal of the obstructing gallstone was all that was necessary to re-establish continuity. The duodenum itself was not badly damaged, beyond some superficial ulceration of the mucosa; therefore, simply closing the duodenotomy wound was all that was deemed necessary locally. A Foley catheter was inserted into the fundus of the gallbladder to decompress the biliary tree proximally and provide a pathway by which structures could be subsequently identified should secondary biliary tract procedure be necessary. Although there was no reason to suspect that the small bowel would remain obstructed by edema where the gallstone lay, it was felt necessary to decompress the stomach by gastroenterostomy, and, in view of the postoperative course, this appears to have been the correct thing to do.

The second direct surgical consideration is that related to the biliary tree. Recommendations are made, when necessary, for secondary operations on the biliary tree after recovery from the primary procedure. Cholangiography carrried out postoperatively via the cholecystostomy tube failed to show the presence of any residual calculi either in the gallbladder or in the biliary tree. Therefore, any further surgery would seem unnecessary, and it is the opinion of the authors that the sinus tract will probably become obliterated. Lack of further symptoms has borne out this opinion postoperatively.

The prognosis in this instance should be good. The authors do not plan further surgery unless cholangitis, jaundice, or a calculus develop.

Summary

A case of duodenal obstruction secondary to a large gallstone is presented.

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Epidemic of Stiff Neck

In the autumn of 1958 and again in the late summer of 1959 a small epidemic of acute myalgia, principally affecting the trapezius muscles, occurred among nurses at this hospital. In all, 13 nurses reported sick — 7 in the first epidemic and 6 in the second. The total nursing staff at the main hospital numbers about 725, so the attack-rate sems very small. Inquiries among the nurses suggests, however, that many others were affected during the relevant periods but did not consider their symptoms severe enough to seek medical advice.

All except 1 of the 13 nurses who reported sick were admitted, and the condition was studied more fully than appears to have been possible before. *D. M. Davies. Epidemic Cervical Myalgia. Lancet. June 11, 1960.*

Idiopathic Hypoparathyroidism:

Report of a Case

Sophie J. Presley, M.D., and Jerome T. Paul, M.D., *Chicago*

Idiopathic hypoparathyroidism is a relatively rare disease which may present itself with a number of varying signs and symptoms. More common among these are tetany, convulsions, muscle cramps, parasthesias, mental changes, vomiting, constipation, soft tissue calcifications, cataracts, dental defects, and ectodermal changes involving the hair, nails, and skin. It must be differentiated from pseudo-hypoparathyroidism, a similar condition in which there is a lack of end organ response to parathyroid hormone and which may be associated with some dyschondroplasia, especially of the metacarpals and metatarsals.

The subject of idiopathic hypoparathyroidism has been extensively reviewed in recent years. Some of the most comprehensive reviews have been contributed by Steinberg and Waldron[1] and Bronsky et al[2]. The association of idiopathic hypoparathyroidism with insufficiency of other endocrine glands is even a rarer situation. A limited number of cases have been reported[3-8]. It is the purpose of this paper to record a case of idiopathic hypoparathyroidism associated with hypothyroidism.

Case report

This twenty year old, white male was in good health until the age of thirteen, when he began to have "epileptiform seizures" described as one to two hour episodes of muscle spasm of his hands and feet. There was no history of convulsions or of thyroid or neck surgery. His past and family history were negative. An electroencephalogram revealed a moderately slow abnormality, and spinal fluid analysis was within normal limits. Dilantin® sodium was prescribed with some improvement.

In 1954 the patient was hospitalized for an extensive study because of an early cataract of his right eye and a positive Trousseau sign in addition to the above history. Physical findings were otherwise normal except for poor dentition. X-rays of the skull, chest, and right femur were normal except for the presence of supernumerary teeth on the skull films. Blood counts and urinalysis were also normal. Serum calcium was 4.8 mg. %, inorganic phosphorus 10.4 mg. %, alkaline phosphatase normal, blood urea nitrogen 11.8 mg. %, and CO_2 combining power 60 vol. %. A flat plate of the abdomen was negative. A diagnosis of idiopathic hypoparathyroidism was made and the patient placed on five tablets of calcium gluconate and fifteen drops of dihydrotachysterol daily orally with good results.

The patient was first seen in the Metabolic Clinic on March 22, 1957, at which time he had no complaints. Examination revealed a well developed, well nourished, healthy appearing eighteen year old male. Blood pressure was 120/84, and the pulse was 84 and regular. A cataract was present on the right eye, but vision was normal bilaterally. There were upper and lower partial dentures. The Chvostek sign was positive, but the Trousseau sign could not be elicited. An electroencephalogram revealed a moderately abnormal tracing with few bursts of slowing and spike-like activity, maximal in the left temporal area. Skull x-rays showed calvarium

From the department of medicine, University of Illinois College of Medicine, and the Research and Educational Hospitals, Chicago.

thickness exceeding the upper limits of normal in the parietal region with slight generalized demineralization. A small density lying 3 cm. above the dorsum of the sella was thought possibly to represent a small calcification. No other abnormal intracranial densities were visualized.

Examination at the Eye Clinic showed his vision to be 20/30 bilaterally. The fundi were normal and bilateral cataracts were present. X-rays of the chest were negative. Bone x-ray revealed normal long bones of the upper and lower extremities. An intravenous pyelogram showed an essentially normal urinary tract. The hemoglobin was 14.3 Gr., hematocrit 47%, erythrocytes 4,600,000, leukocytes 5,750 with a normal differential count. The calcium was 3.2 mEq./l., inorganic phosphorus 3.5 mEq./l., serum albumin 4.7 Gm. %, serum globulin 2.3 Gm. %, uric acid 2.4 mg. %, nonprotein nitrogen 32 mg. %, fasting blood sugar 80 mg. %, cholesterol 198 mg. %, alkaline phosphatase 4.9 Bodansky units, and serum chlorides 104 mEq./l. A 17-ketosteroid level in a twenty-four hour urine specimen was reported as 4 mg. The basal metabolic rate was minus 16, and a repeat test one month later was minus 14. In June, 1957, a radioactive iodine uptake study showed a value of 21%, and a third basal metabolic rate was minus 28%.

It was felt that clinical and laboratory findings were indicative of idiopathic hypoparathyroidism and hypothyroidism. His medications were increased to 9 Gr. of calcium gluconate daily and fifteen drops of dihydrotachysterol twice daily with the addition of 1 grain of thyroid extract daily. When the basal metabolic rate of minus 28% was obtained, the thyroid extract had been inadvertently omitted for about six weeks. The patient was observed in the clinic at one to three month intervals and remained asymptomatic. His serum calcium varied from 3.2 to 3.8 mEq./l and the inorganic phosphorus from 3.2 to 4.0 mEq./l. (table 1).

TABLE 1—Serum Calcium and Phosphorus

Date	Ca (mEq./l.)	P (mEq./l.)
3-29-57	3.2	3.5
5-3-57	3.4	
6-25-57	3.6	
11-29-57	3.2	3.7
1-6-58	3.2	4.0
3-24-58	3.8	3.2
4-27-58	3.7	3.4
9-5-58	3.6	3.4
12-12-58	3.2	3.4
1-15-60	3.6	3.5

Discussion

Essential criteria for the diagnosis of idiopathic hypoparathyroidism, as stated by Drake et al[9], are a low serum calcium, high serum phosphorus, absence of renal insufficiency, x-ray evidence of normal bone structure, and chronic tetany. In addition, other causes of hypocalcemia such as chronic diarrhea or steatorrhea and of tetany, like alkalosis, must be eliminated in considering basic parathyroid insufficiency.

In a recent review of the literature, Bronsky[2] analyzed the incidence of various symptoms and signs in 50 cases of idiopathic hypoparathyroidism. He found a high incidence of tetany (76%) and convulsions and a moderately high incidence of muscle cramps, twitching, stiffness and pain, laryngeal spasm, and mental changes. Among clinical signs, ectodermal changes of the hair, nails, and skin (52%), cataracts (48%), and basal ganglia calcification (28%) were most prevalent in the cases reviewed. Sex distribution was equal. The onset of symptoms occurred at ages one to ten in 58 per cent of the cases, with the remainder up to age 54.

The subject of this report fulfilled all of the above listed criteria for the diagnosis of idiopathic hypoparathyroidism. Symptomatically he manifested only chronic tetany. Of the various clinical signs, he has bilateral cataracts without impairment of vision, supernumerary teeth, probable intracranial soft tissue calcification, and poor dentition. The Chvostek sign was intermittently positive, but the Trousseau sign was never elicited.

Other endocrine disorders are seldom found in association with idiopathic hypoparathyroidism. Its association with Addison's disease has been noted by several observers[3-7] and has been reveiwed recently by Whitaker[6] and Forbes[5]. Concurrent hypothyroidism and idiopathic hypoparathyroidism is rare[8]. Basal metabolic rates of minus 16% and minus 14% were determined in our patient. After the second test, thyroid extract, 1 grain daily, was prescribed. The pa-

tient omitted thyroid therapy for a six week period at which time the basal metabolic rate was found to be minus 28%. He was returned to 1 grain of thyroid extract daily and has continued on this dosage to the present time. Under thyroid therapy the serum protein-bound-iodine was 3.6 micrograms per cent. On the basis of the basal metabolic rates and the low protein-bound-iodine a diagnosis of hypothyroidism was made in spite of the absence of characteristic clinical signs.

Summary

A case of idiopathic hypoparathyroidism associated with hypothyroidism is presented and discussed.

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Testing radiation exposure

One of the most practical and reliable indications of body uptake of radioactive material is from examination of urine specimens at an appropriately equipped radiochemical laboratory. Urine specimens should be 24-hour specimens. This sample is the collection of all voidings excluding the first jet of the morning of the day of collection and including the first morning sample of the second day. Instructions should be obtained from the laboratory performing the examination as to type of container to be utilized and method of preservation, if any, of the specimen. In the Air Force, samples are sent to the USAF Radiological Health Laboratory, Wright-Patterson Air Force Base, Ohio. These examinations indicate exposure only, and do not give any actual information about damage or injury. Findings of less than the threshold value indicate that no significant exposure has occurred. Findings greater than those recommended merely indicate that an uptake of radioactive material of significance has occurred.

When an actual contamination is demonstrated, urine samples should be collected from those workers who have been within the most highly contaminated locations. Random samples from persons known to have been in areas where contamination was below the permissible levels and representative samples from persons who are known to have been in completely unexposed locations should also be collected. Approximately 1 year following an accident, random samples from persons working throughout the base should be evaluted to assure that no unsuspected uptake of material is occurring. *Brig. Gen. T. C. Bedwell, Jr., USAF, MC. Peacetime Nuclear Weapons Incidents. U.S. Armed Forces M. J. September 1960.*

Prozine® in Organic Disease

HARVEY HORWITZ, M.D., *Chicago*

IN RECENT YEARS considerable emphasis has been placed on physiological response to anxiety. The effectiveness of tranquilizers in the treatment of anxiety as it appears in a variety of organic conditions has been established. Their usefulness in disease-induced anxiety has not received adequate attention. It may be so intense that it hampers diagnosis and interferes with response to specific therapy.

The effectiveness of Prozine,* a combination of meprobamate and promazine, has been demonstrated by Parks.[1] The purpose of this report is to describe the author's experience with Prozine with emphasis on its use as an adjunct to specific therapy in chronic and long term illness.

Prozine was prescribed for a series of 50 patients, 33 women and 17 men, from 20 to 80 years of age. Thirty-four of the patients had organic disease; the majority suffered from chronic or long term illness. Patients with organic disease were given the specific therapy indicated. In addition, 3 capsules of Prozine per day were prescribed for 44 patients; 4 per day for 5 patients; and 2 per day for 1 patient. The duration of therapy was one to twelve weeks; 39 patients (78%) were treated for one to four weeks.

In 47 cases a placebo identical in appearance with Prozine was used for periods of one to four weeks. If the patient had no organic disease, the usual procedure was to use the placebo first. In chronic or long-term illness the placebo was substituted after a Prozine observation period. If the contribution of specific therapy to anxiety control was questionable, Prozine therapy was interrupted for the placebo trial.

The extent to which emotional symptoms were controlled was graded as good, fair, or poor. It included the subjective response of the patient, the observation of the investigator, and comparison with response to placebo. When drowsiness occurred, it was graded 0, none; 1, slight or transient; 2, moderate but significant; 3, drowsiness severe enough to warrant discontinuation of the medication.

Results

Table 1 summarizes the observations of the 50 patients. Prozine controlled anxiety effectively in 47 (94%) of the patients; in the remaining 3 patients results were fair. Placebo therapy

**Prozine capsules (meprobamate 200 mg. and promazine 25 mg.) supplied by Wyeth Laboratories.*

TABLE 1.—PROZINE THERAPY IN 50 PATIENTS WITH ORGANIC DISEASE

Diagnosis	No. of Patients	Control of Emotional Symptoms: Prozine Good	Prozine Fair	Placebo Good	Placebo Poor	Degree of Drowsiness: 0	1	2	3
Heart Disease	6	6			6	3	0	1	2
Hypertension	5	5			5	4	0	1	0
Obesity	5	5			5	4	0	1	0
Respiratory conditions	4	2	2	1	3	3	0	1	0
Osteoarthritis	3	3			3	3	0	0	0
Chronic bursitis	3	3			2*	2	0	1	0
Pernicious anemia	3	3		1	1*	1	0	2	0
Migraine	3	3			3	3	0	0	0
Alcoholism	3	3			3	3	0	0	0
Other	9	9			8*	3	1	4	1
None	6	5	1		6	5	0	0	1
Totals	50	47	3	2	45	34	1	11	4

*Placebo not tried in one case

benefited only 2 patients. In 2 patients with heart disease the medication was discontinued because of lethargy; another patient complained of drowsiness, but medication was continued. It is difficult in these cases to assess the degree to which the physical condition and the drug contributed to the lethargy. In hypertension without heart disease, fatigue is not an outstanding feature. In none of the 5 patients was Prozine therapy discontinued because of lethargy; only 1 complained of drowsiness. All these were relieved of tension while on Prozine therapy. In the 5 obese patients, all overeaters, with no glandular cause for the condition, tension was controlled by Prozine during dieting. The least responsive patients suffered from chronic respiratory conditions. The tension of 3 alcoholics also was controlled, and all of them reported a decrease in alcohol consumption.

One patient with peptic ulcer and 1 with no physical symptoms were unduly reactive to Prozine; they experienced lethargy while taking 2 Prozine capsules a day.

Conclusions

The results indicate that Prozine is a useful adjunct to specific therapy in organic disease, as well as an effective treatment for anxiety. Emotional symptoms were controlled with Prozine in 94 per cent of the patients; the placebo was effective in only 4 per cent.

The percentage of patients reporting drowsiness in the present series (32%) is greater than was observed by Parks (1%) or Moessner (3.6%).[2] This may be accounted for by the physical condition of the patients in the group studied. For example, drowsiness might be anticipated when tension is relieved in patients with pernicious anemia, heart disease, or chronic illness with associated insomnia. Drowsiness was sufficient to warrant discontinuation of the medication in only 4 cases. A half-strength capsule would allow the physician more leeway in regulating the dose for patients in whom anxiety is a reaction to concurrent organic disease.

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Beginning in the January issue
another new feature with
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Medicine in the Out-of-Doors

a regular monthly page
by
Julius M. Kowalski, M.D., Princeton

Toxicology in a General Hospital

ELEANOR BERMAN, Ph.D., *Chicago*

TOXICOLOGICAL problems are not uncommon in a general hospital. Many children, for example, accidentally ingest harmful substances. Other cases arise from the injudicious use of proprietary and even prescribed drugs. About 15 per cent of the poisoning cases seen concern poisons, self administered with suicidal intent.

To identify most poisons today, the toxicologist uses some technical facts concerning drug action, a few laboratory instruments, fairly simple analytical techniques, and his own senses: smell, sight, occasionally taste. An adequate description of a patient's vital signs: state of consciousness, respiration, breath odor, color, temperature, pupil size and reactivity, stains or corrosion about the mouth, can save innumerable hours of analysis time. For example, an individual with pin-point pupils and no response to stimuli is not suffering from an overdose of strychnine.

Simple toxicological problems solved without any involved chemical analysis are represented by the following two cases. Case No. *256008*, a sixty year old, white female was admitted in a near shock-like state. Her tongue was blackened and swollen. There were signs of corrosion about the mouth. The saliva was thick, mucoid, and when rubbed between the fingers, felt very slippery, suggesting sodium hydroxide. Nitrazine paper placed far back in her mouth registered a pH well above 8. Obviously, a strong alkali had been swallowed. Suitable treatment was instituted.

Somewhat more complex is case No. *219224* where a toxic substance could be identified through history and presenting physical signs. A three year old child was suspected of swallowing 30 reducing capsules, each known to contain amphetamine (10 mg.), thyroid (1/3 grain), and atropine (1/240 grain). When seen approximately five hours after the disappearance of the capsules, the child seemed markedly agitated. There was a deep flush beginning at the neck and spreading upwards. Pupils were widely dilated; the child's eyes appeared unable to focus. She also exhibited a profound and continuous diuresis. It was not necessary to await the results of a chemical analysis. Toxicity from ingested thyroid medication will not become manifest in a mere five hours. The clinical signs clearly indicated amphetamine and not atropine intoxication. Though both atropine and amphetamine produce a pupillary dilation and a flushed face, atropine depresses the detrusor muscle while amphetamine stimulates a diuresis. The child was sedated with Amytal®.

Department of laboratories, Illinois Masonic Hospital, Chicago.

Modern instrumentation

In most cases however, identifying toxic substances is more complex. The older, classical means of analysis consume days. Identifying a poison requires a sample size too large for practical clinical use. Also, while classical microcrystalline[1,2] tests are useful, they serve only to identify the pure substance and cannot be used for preliminary analysis. Furthermore, the older tests are not sufficiently specific, e.g., morphine and extracts of decomposed tissue can give similar color reactions.

Before the routine use of ultra-violet spectrophotometry in identifying organic compounds, any request to ascertain the presence of barbiturates in blood or urine would induce a marked anxiety in the chemist. Reactions, at best, were insensitive and confusing. Often the positive control (barbital) gave the reaction described for the negative control (water) and vice versa. Now, with relatively simple ultra-violet spectrophotometric method,[3] we can establish the presence of a barbiturate as well as indicate the quantity. The entire procedure requires approximately twenty minutes, slightly more than the time needed for determining a blood sugar level.

At the beginning of this century, it was known that certain organic compounds absorbed varying amounts of ultra-violet light at various

points in the ultra-violet spectrum.[4,5] The pattern of absorption was quite characteristic for any given compound and could be used for identification. Schiller in 1937 first succeeded in applying such knowledge in identifying these compounds encountered in toxicological investigations.[6] Compared to spectrophotometers available now, however, Schiller's instrument was crude and difficult to manage. His success arouses admiration.

Today, sensitive instrumentation easily operated helps overcome numerous obstacles presented by older cumbersome methods and the plethora of toxic agents.

The following cases are typical of toxicological problems readily solved with an ultra-violet spectrophotometer.

Case No. *215192*, a white female aged 19, was admitted unconscious. Her mother stated that after a quarrel with her husband that morning the patient swallowed all the pills she could find around the house, aspirin included. The family physician who was summoned administered 75 mg. of Demerol®, ordered a gastric lavage upon hospital admission and 1½ grains of Seconal® to be given that evening. In view of the patient's history, the wisdom of those two drug orders is highly questionable.

Results of toxicological analysis of blood and gastric contents collected approximately two hours after ingestion were as follows[2]:

	Blood	*Gastric Contents*
Salicylates	180 mg.%	40 mg.% (200 mg. total)
Barbiturates	12.5 mg.%	36.3 mg.% (182 mg. total)
Demerol	0.15 mg.%	0
Alcohol	0	0

Blood count and urinalysis were normal. The patient was awake, but drowsy, four hours after the gastric lavage. She was discharged two days later.

Case No. *217345* F.P., a white male, aged 66, was admitted unconscious, with a scalp laceration. X-ray did not reveal a skull fracture. Routine blood count and urinalysis were normal. The patient awakened the next day and was described as being "very confused." The remainder of his five day stay was uneventful. The discharge diagnosis was contusion of head with small laceration.

He was readmitted the following week via ambulance. A coherent history could not be elicited. Routine laboratory tests were normal. Except for a 1 plus Pandy test, the spinal tap was negative. He was thought to be suffering from mental deterioration. The neurologist suggested that provision be made for future custodial care. A few days following admission, the patient developed an acute cystitis which responded to treatment. No further statements were made concerning his neurological status.

Six months later F. P. was again admitted in a stupor. At this time the neurologist who had also seen him on his second admission requested toxicological studies. Routine blood count, urinalysis, blood sugar, and nonprotein nitrogen (NPN) were all normal. No alcohol or alkaloids were demonstrated. However, the blood barbiturate level was 7 mg.%

A month following his third discharge the patient was again stuporous upon admission. Routine laboratory work was normal. The blood barbiturate level was 3.3 mg.%. He denied taking barbiturates. However, after being hospitalized for a week, his barbiturate level was still 1.2 mg.%.

Since being discharged at his own request, this patient has not been seen.

Salicylates and narcotics

Isolation and identification of frequently encountered substances like bromides or salicylates should present no problem to any laboratory. The gold chloride reaction of bromides and the ferric nitrate reaction with salicylates are definite. Even a Duboscq colorimeter would be sufficient to quantitate the amounts present. In fact, a comparator block could be used to differentiate between negligible and toxic amounts. Both procedures can be completed in less than one-half hour.

It is important that salicylate determinations be available wherever pediatric emergencies are treated. Aspirin is such a common drug, so easily obtained, that the laity does not appreciate its inherent dangers for children. We have readily trained pediatric residents to determine salicylate levels in patients admitted at odd hours.

The isolation and identification of narcotic alkaloids presents a greater problem.[7] Plasma and urine samples must be autoclaved to free the protein-bound morphine or codeine. However, the identification of narcotic substances in pills, capsules, and solutions is delightfully sim-

ple — merely a matter of establishing their ultra-violet absorption characteristics. For example, if mischance might introduce a few scopolamine tablets into a bottle containing morphine tablets, the identification would be very simple. Since both compounds are alkaloids, they are soluble in an acid solution like 0.1 normal HCl. Scopolamine has peak absorbance at 251.5 mμ while morphine has a peak of 285 mμ. Scraping a few particles from each tablet in question into tubes of 0.1 N HCl and reading the absorbances of the resulting solution every 5 mμ from 220 to 320 mμ would identify the tablets.

The following incident of a precipitate in a preoperative hypodermic will serve to illustrate this principle. A nurse while preparing a hypodermic containing morphine and atropine was called from the medicine room. She did not stop to lock the syringe in the narcotic cupboard. Upon her return this nurse noticed that a precipitate had formed in the syringe. Laboratory assistance was sought to explain the mystery.

Two aliquots were removed from the syringe, one was alkalinized and the other acidified. Each in turn was extracted with chloroform and the chloroform was re-extracted with acid or alkali. Ultra-violet absorption studies of the final extracts showed the syringe contained a small amount of morphine but a large quantity of Amytal. Whoever had taken the morphine understood the need of substituting another sleep-producing agent but knew nothing about incompatibilities.

Upon rare and memorable occasions an accident will uncover and solve a medical problem whose toxicological nature is unsuspected. One of the technicians determining urinary 5-hydroxyindole acetic acid (5-HIAA) excretion used as control a urine sample sent down for routine analysis. This particular patient complained only of tingling fingers and a constricted feeling across the chest. Though the history and physical findings were negative for carcinoid, her urine sample gave a strongly positive reaction for 5-HIAA. Repeated samples also gave the same reaction. No drugs known to cause this reaction had been prescribed in the hospital. The patient denied taking any medicine. Finally, after repeated questioning the patient admitted taking "pills" brought from home for her headache. These were Gynergan (ergotamine tartrate) prescribed by a physician who had died four years before her present hospital admission. After cautioning her about the dangers of refilling and taking old prescriptions without suitable medical guidance, the patient's current physician confiscated the tablets. Within three days her urine was nonreactive, and within a week the patient was symptom free.

Determining metallic poisons

Of the 540 toxicological analyses performed at Illinois Masonic Hospital over a four year period, about 80 per cent were for metals, primarily lead, arsenic, thallium. With lead determinations a quantitative result can be obtained in approximately two hours with less than 3 ml. of blood. By modifying the Hammond method[8] based on trichloracetic acid extraction, conversion to a cyanide, and lead-dithizone-complex formation, we were able to handle, easily, an average of 15 lead analyses, daily, along with the other routine and special chemistries during the summer of 1959. In determining the other metals mentioned, larger samples than we like to use routinely are necessary. It is disturbing to draw 20 ml. of blood from two year old children, while even collecting 24 hour urine samples from this group can present slight difficulties.

Problems resulting from metallic poisons are represented by this case. W. J., a four year old Negro boy, was somewhat ataxic upon admission to the children's neurology service at Cook County Hospital. A hyperkeratosis of the palms of the hands and soles of the feet was noted. While urine and blood samples were in transit to Illinois Masonic Hospital for analysis, we were notified that the child was losing his hair and eyebrows. No arsenic or lead was found in blood and urine samples, but thallium levels were 800 μg.% and 750 μg.%, respectively. Analysis repeated in 15 days showed the blood to contain 605 μg.% and the urine, 650 μg.%. Levels determined in 40 days were 350 μg.% and 88 μg.%. The child was discharged about two weeks after the last determinations, apparently asymptomatic.

In addition to the three hours spent acid-digesting the organic material present in the above mentioned samples, about three more hours were required to complete the specific reactions. Obviously, shortening the analysis time is desirable.

The comparatively recent appearance of the photomultiplier attachment for the Beckman

DU, designed to increase that instrument's sensitivity and depress extraneous emission spectra, gives promise towards utilizing flame photometry, clinically, in analyzing metallic contents of biological materials. Technical details are yet to be defined. Probably the day is not too far distant when lead, arsenic, thallium, mercury, etc. can be determined in a clinical laboratory with the dispatch that sodium and potassium are today.

Metabolic anomalies

The clinician should not minimize the role of metabolic anomalies in producing toxic states. An unknown comatose individual brought into a hospital emergency room is more often a diabetic than a drug addict. We routinely determine the blood glucose and nonprotein nitrogen whenever drug levels are requested on newly admitted comatose patients. Nor should the viral and bacterial agents be forgotten. Symptoms may be similar to those of poisons. Because of their experiences during the summer of 1958 and 1959, a few Chicago pediatricians are quite conscious of lead intoxications. However, during these last few winter months, a number of children originally suspected of having lead poisoning were later diagnosed as having measles. Recently a child with a bizarre picture plus a history of chewing on toys, newsprint, eating matches, and drinking lighter fluid was admitted. This possible toxicological nightmare resolved itself when the child obligingly broke out with chickenpox.

Summary

Toxicological problems are commonly seen in a general hospital. They are usually accident, often involving children. Numerous poisonings can be diagnosed by an adequate history and correct interpretation of physical signs. Simple chemical tests can define the poison in many other instances. Even in complex cases, readily available instruments enable the modern clinical laboratory to identify quickly those toxic substances which by the older classical methods would require days.

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Avoiding postoperative pulmonary disease

Posture may play a significant part in the development of (postoperative) pulmonary complications. The sitting position and slouching in a folding bed force abdominal viscera and diaphragm upward, restricting ventilation. Hydrostatic dilatation and stagnation of lower-leg veins occur on sitting and probably predispose to venous thromboembolism. It is my practice to permit the patient to walk or to lie flat in bed but not to permit him to sit.

Heavy restrictive dressings and abdominal binders are deplored as impediments to proper ventilation. The supposed support that they afford has never been demonstrated to prevent wound disruption, whereas their restrictive effect on breathing is easily seen. *Benson B. Roe, M.D. Medical Progress. Postoperative Care. New England J. Med. Sept.* 15, 1960.

EDITORIALS

Homemaker services

This month we feature the Homemaker Services on our Reference Page. This service was designed originally to keep families together when mother is ill or otherwise incapacitated. The service provides and maintains the necessary help that ill or disabled mothers need to remain comfortable and independent in their own environment. Family life continues despite the absence, illness, or incapacity of the mother. In many instances the children reap the benefits because they can continue to live at home and go to school.

The homemaker is a carefully selected, trained, mature, kind, and understanding woman between 35 and 60 years of age. She works under the supervision of the physician, nurse, or other professional people such as speech therapist, nutritionist, or social worker. Her duties vary depending upon the nature of the illness and its severity and on the availability of other family members to render personal care to the sick member. The homemaker keeps house, helps the patient with bath and other toilet duties, prepares special diets when needed, and gives prescribed medicines. Procedures requiring medical skill or judgment (such as giving injections) are not undertaken routinely by these women.

Their theme this year is "Homemaker Service — A Community Resource for Families."

The service is not free; the homemaker does not replace the mother. It does offer many persons handicapped by age or other disability the use of their residual capacity to maintain their usual role in home and community.

Screening for heart disease

For many years public health authorities have been interested in incidence and prevalence studies of various diseases. Large scale screening procedures have yielded information valuable in treatment and control of several illnesses.

Until recently, no satisfactory method of screening for heart disease had been devised. The use of the single-lead electrocardiogram was tried and found wanting. Phonocardiography also has been found unsuitable. Simple physical examination has been the most satisfactory method, but the elements of fatigue, and cost, render this impractical when applied on a mass basis.

In recent years the development of modern methods of treatment and prevention of various forms of heart disease has created a new need for a means of early detection of cardiac abnormalities.

Over the past five years a committee of The Chicago Heart Association has been engaged in the development of a new technique for screening children for heart disease. This method employs a professional quality tape recorder, to which has been added equipment developed by the committee, that renders the operation of the recorder almost completely automatic. This equipment, in its present stage of development, can record the heart sounds of 60 children per hour. About 250 children can be recorded in a normal school day. The tapes can be played back and read, for abnormal sounds, at the rate of 140 per hour. The results of the first four years of work, including verification studies, and specifications and design of the recording unit, have been published by the committee.[1]

During the school year 1959-1960 the equipment was given a field test in the Chicago Public Schools. Under the supervision of a committee representing the Chicago Board of Education, Chicago Board of Health, Chicago Medical Society, and Chicago Heart Association, the heart sounds of 33,091 grade school children were recorded and read for heart disease. The results of this project are now being studied and will be published as soon as tabulation is complete. We can say at this time, however, that the performance of the equipment exceeded all expectations. Operation was almost continuous over

the entire school year, and at no time was a tight recording schedule delayed by technical failure. Preliminary review of the data suggests that a significant number (in the neighborhood of 3 per 1,000) of previously unknown cases of heart disease were detected.

The Committee feels that this technique offers a practical way to screen large populations of school children for heart disease.

JACQUES M. SMITH, M.D.
Chairman, Children's Screening Committee

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[1]*Smith, Miller, Marienfeld, Hahneman and Willard: Use of Tape-Recorded Heart Sounds in Screening of Children for Heart Disease: Circulation XX, 5, p. 887, Nov. 1959.*

Criminal abortionists

The recent exposé of Chicago abortionists is a rehashing of a nasty problem that no one throughout the ages has been able to solve. Columnist Mabley blamed police, organized medicine, and the state licensing bureau. All are involved indirectly, but it is doubtful whether these groups individually or together can stop this racket. The police know who the abortionists are but seldom get sufficient evidence to lead to a conviction. The state can revoke the physician's license, but abortionists often practice without a license.

Criminal abortions are illegal and unethical in the eyes of the medical profession. The majority are not members of the medical society, but this has never discouraged them from indulging in so lucrative a practice. The bad apples include the operators as well as the more refined physicians who refer the patient, with or without splitting fees. In addition, the medical society does not have the setup to police its own ranks unless charges are brought before its ethical relations committee.

Newspapers report the news as they see or find it. In many instances, conclusions are drawn from a handful of cases. The disastrous results are emphasized to sensationalize the story, and the statistics are never questioned. Apparently the death rate and serious complications are not as high as we are led to believe.

The pregnant woman is forgotten too often in the illegal abortion. She requests it, aided and abetted perhaps by her husband or lover. Women for centuries have been seeking the help of someone to do away with unwanted pregnancies. The motives usually are powerful and compelling. Contrary to general opinion, it is not the single woman who supports the abortionist. The majority are married, possibly because more married women get pregnant than those who are single. Pregnancy in the single girl leads more often to the altar than the abortionist.

The abortionist is the other culprit. He or she is a criminal outside the law and excommunicated by the medical profession. What makes a highly educated man resort to an illegal practice? Money perhaps, but there must be another side to the story. One of the most interesting reports along this line was made by the Institute for Sex Research, founded by the late Alfred C. Kinsey.[1] Its interviewers questioned more than 18,000 men and women and acquired as subjects several practicing abortionists during the course of taking sex histories. There were only a few, but the interviewers were "impressed with their technical ability and low number of deaths and ill effects resulting from their operations." The interviewers found also that in most cases the abortionist showed a genuine concern over the plight of a woman with unwanted pregnancy. They told of an abortionist who performed 30,000 abortions without a single death, and he gave considerable evidence to support his claim. He was so concerned with these women that he attempted in vain to have a psychiatric social worker to counsel prospective abortion patients in the social and emotional aspects of their problem.

There is no doubt that a demand exists for the services of an abortionist. He may justify his existence on this account, but the criminal nature of the abortionist also creeps out when he attempts to bring the family physician into the picture through phone calls and a letter containing an unsubstantiated and unwanted cash rebate.

The referring physician may be sympathetic also with the plight of the woman who does not want the pregnancy. We question the motive, however, when he begins to split fees. He is just as guilty as though he masterminded the crime or sat in the get-away car as the lookout for a band of thieves.

More liberal abortion laws might help the

situation as well as a more widespread use of contraceptives. But changes in our mores or laws are unlikely in the light of social and religious objections to both practices. The Soviet Union had to shift its policy relative to free legal abortions because of mounting reports of undesirable side effects. There was wide sterility and libido damage as well as an adverse effect on the general health of women whose pregnancies had been interrupted. Other countries are conducting similar experiments as a form of social reform. Reasons vary from the "worn out mother" gimmick to overpopulation. Russia did it to emancipate women and to give them equal rights with men by not asking them to bear unwanted children.

Will the illegal abortion problem be solved in our generation? Possibly, considering that during the past 25 years we already have solved a host of problems that existed also since primitive times.

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[1]Pregnancy, Birth and Abortion, Paul H. Gebhard, W. B. Pomeroy, Clyde E. Martin, C. V. Christenson, New York, Harper-Hoeber, 1958.

The referring physician and the Rehabilitation Institute

Dr. Howard Rusk has stated that rehabilitation begins with the belief that the physician's responsibility to his patient does not end when acute illness is over or when surgery has been accomplished, but ends only when the patient has been returned to a productive and useful life. Rehabilitation, then, starts the moment of the acute onset or injury and extends to the point of return to the community as a functioning citizen; and it is the responsibility of the physician to guide the patient through the many different phases of his rehabilitation program.

Ideally, each physician should have readily available to him the help of the many other disciplines of medicine including the nurse, physical therapist, occupational therapist, speech therapist, social worker, psychologist, and vocational counselor. Unfortunately, it is the rare physician who finds himself in this position, and of necessity, we have had to build rehabilitation centers where these services can be grouped together for a truly comprehensive rehabilitation program.

How can we say that it is the physician's responsibility to carry his patient through the rehabilitation program and then suggest that he turn over his patient to an institution to carry out the greatest portion of this rehabilitation treatment? Just as the physician finds in his daily medical practice that he has to turn to physicians in other specialties for further consultation, so must he turn to a rehabilitation center as a group consultation service.

The Rehabilitation Institute of Chicago is a voluntary, non-profit hospital devoted to the care of patients with neuromuscular-skeletal disabilities. It functions as a service or consultant organization for physicians and health agencies in the community and accepts patients only upon medical referral. The Rehabilitation Institute can assume responsibility for the management of the rehabilitation problem only. In the case of the patient treated in the outpatient department, services can remain very limited. The diabetic amputee, for example, will continue to see his private physician for the management of his diabetic problem and at the same time can be followed at the Rehabilitation Institute for prosthetic fitting and training.

In servicing the in-patient, however, the problem becomes more complex. Here, the institute is assuming the responsibility for 24 hour care and, of necessity, the internist and other specialists on the staff must provide the daily medical management as necessary. However, any physician whose referred patient is accepted as an in-patient at the institute is automatically extended the privilege of courtesy staff appointment, the appointment to last the duration of the patient's hospitalization. The physician is then encouraged to visit his patient at the institute as frequently as he can, daily if possible, and to assist the institute physician in the general management of the case.

Recognizing the fact that it is difficult for many physicians to get to the institute to see a patient this frequently, we have had to turn to reports as the best method of communication. All physicians receive an initial report concerning their patient soon after admission; monthly notes are sent to them; and a final summary of hospitalization is sent when the patient is discharged. Let us stress that we do not feel any major decision can be reached without prior consultation with the referring physician. In this

way, the Rehabilitation Institute offers a service to the practicing physician to help him in carrying out his rehabilitation responsibilities.

If any rehabilitation program is to succeed, the referring physician must remain active. He must adequately prepare the patient for admission to such an institution, maintain as much contact as possible during the hospitalization, and have adequate reports and summaries from the rehabilitation center subsequent to discharge. Only in this way can he continue to offer the treatment necessary to keep the patient in the stage of productivity which he was able to reach through the benefit of a rehabilitation program.

Bernard J. Michela, M.D.

From the Quarterly Review of the Rehabilitation Institute of Chicago, July 1960.

Report to the people

The U.S. Department of Health, Education and Welfare was so impressed with the 1959 report of the Peoria Health Department that it was upheld as a model for other cities to follow:

"In the 1959 report of the health department of Peoria, Ill., printed in pocket size on coated paper, the frontispiece carries a sketch of the new city health center. An informal greeting, of 250 words, by Dr. Fred P. Long, director of health, is followed by eight pages of pictures of the department in action, including press and television work, classes for expectant parents, inservice training, counseling by public health nurses of mothers and the aged, school health, followup of accidental poisoning, clinics, history recording and filing, sanitation, laboratory and dental services, rabies control, and a deep bow to the clerical staff restoring their mental health over a cup of coffee.

"One page with six brief paragraphs is given to current achievements, such as a conference on emotional health in the schools and the reduction of the number of outside toilets to 26 in a community which had 3,300 when the health department was organized. The facing page looks to the future, with three items, set up in news-page form, referring to an air pollution report, a survey of the effects of fluoridation in the city, and a continuing program of immunization.

"The last page carries the local vital statistics, with a breakdown of leading factors in death and illness, and a financial statement. The inside back cover lists the names, jobs, and locations of all employees of the department. The back cover says: "Scientific progress is based on the art of knowing the changing wants and needs of the people."

"George Hensley, director of health education, lists himself in alphabetical order under administration." *Report to the People. Pub. Health Rep. Aug.* 1960.

Better prognoses for "strokes"

If cerebral arteriography demonstrates a surgically accessible arterial abnormality, or perhaps reveals a large intracerebral clot of the frontal lobe which has obliterated its own bleeding point but is threatening cerebral function by acting as a tumor, surgical treatment may radically alter for the better a previously hopeless prognosis. Even in so-called "spontaneous cerebral hemorrhage," which for years has carried a mortality rate close to 95 per cent, early diagnosis by angiography and prompt surgical intervention when indicated have successfully lowered this figure to about 50 per cent. In all probability there will always be a certain number of patients with cerebral hemorrhage for whom no definite therapy is available, but this number will become progressively smaller as routine cerebral arteriography "weeds out" those for whom specific measures offer considerable hope. *R. A. Kuhn, M.D. The Misnomer "Stroke." Am. Pract. & Digest Treat. April 1960.*

Reference Page Number 13

Homemaker Service

Definition (National Conference on Homemaker Services):

> "The service of a mature, specially trained woman . . who is employed by a public or voluntary health or welfare agency to help maintain and preserve family life that is threatened with disruption by illness, ..."

Chicago

Catholic Charity Bureau
Family Care Department
645 West Randolph Street

Child and Family Service
1438 East 57th Street

Cook County Department
of Public Aid
Public Assistance Division
25 South Damen Street

Jewish Family
and Community Service
1 South Franklin Street

Salvation Army
Family Service Division
10 East Pearson Street

Peoria

Child and Family Service
2142 North Knoxville Avenue

A refresher course for homemakers is given at the University of Illinois, under the auspices of the University Extension Division and in cooperation with the School of Social Work. This course was initiated and planned by four homemaker service agencies in the city of Chicago. All homemakers employed by these agencies will be given this refresher or "advanced" course in a series of eight weekly sessions covering 16 hours of academic work.

The National Committee on Homemaker Service, 25 South Damen, Chicago 12, offers a complete slide series and narration (choice of tape or disc) "Anybody's Crisis" portraying the functions performed by the Homemaker. Rental, $15 per showing; purchase, $80.

from the Illinois Medical Journal
NOVEMBER, 1960

AT THE EDITOR'S DESK

How Is Your Fire Protection?

A package plan of fire insurance that includes all aspects of protection is available to physicians at moderate cost. Fees are paid on a monthly basis and include regular inspection of equipment as well. It should be beneficial for those who have never given consideration to fireproof storage of their records or the need for fire escapes and liability insurance.

The retired chief of fire prevention in New York City, James P. Ragan, spells out some of the fire hazards in a physician's office in the September issue of New York Physician. A few more come to mind.

Initial inspection includes office layout. File cabinets, furniture, and the receptionist's desk that block doorways, and flower boxes and air conditioners that block escape by window are fire hazards. So are ether and other inflammables stored in unventilated closets or near unprotected electrical equipment and areas where smoking is permitted.

Office employees are not neglected by the service. Such dangerous practices as throwing alcohol-soaked cotton balls and gauze into wastebaskets are pointed out. Employes are taught how to turn in a fire alarm, how to evacuate patients once a fire has started, the hazards of volatiles and electrical equipment, and how to operate fire extinguishers. For general purposes in a physician's office, the extinguisher that contains carbon dioxide is preferable, for it is effective, when water is not, against burning oils and chemicals. In addition, carbon dioxide does not injure rugs or furniture.

Since fire insurance should be based on replacement rather than original cost, it is reviewed and updated regularly. Liability insurance is, of course, made adequate.

Pharmaceuticals

Ditran (Lakeside) was reported to produce realistic insanity in human volunteers. It is an eight to twelve hour psychosis that is indistinguishable from the true disease.

The Lakeside Laboratories are experimenting now with two drugs to overcome the effects of Ditran. Tetrahydroaminacrin reversed the psychosis in five minutes; the other, cyclopentimine, was antagonistic and brought about substantial improvement in 50 per cent of a variety of schizophrenic patients.

Recording Reflexes

The Achilles tendon reflex is prolonged in patients with myxedema. This cannot be seen with the eye but is definite when detected with a photo-electric device — the Photomotograph (Burdick) and recorded on an electrocardiograph.

A tap on the Achilles tendon with a percussion hammer causes the foot to move, thus making a record showing the duration of both contraction and relaxation. The normal time from start of tap to one-half relaxation is 300 milliseconds. It jumps up to 485 for hypothyroidism and goes down to 235 for hyperthyroidism.

Time will tell whether the photomotograph is as practical and accurate as the BMR or PBI tests.

Prosthetic Heart Valves

"Man is one step nearer his long-time goal of replacing faulty heart structures, valves, and arteries with man-made parts," claims the B. F. Goodrich Co. They make prosthetic valves from a rubbery plastic material known as Estane.

Laboratory tests have demonstrated that cardiac valve implants in dogs were accepted by the tissues of animals throughout a series of experiments lasting up to 15 weeks. Dr. W. J. Kolff, the father of the artificial kidney, has also used Estane in the development of a plastic heart. "Man-made" has a dual connotation: Man makes some things inside the body and other things outside.

Crystal Gazing

Predictions of what physicians will be doing 10 to 100 years from now are coming in fast and furiously.

A hospital architect, E. Todd Wheeler, writing in the September Bulletin of the International College of Surgeons, sees the hospital of the future — "the day *after* tomorrow," as an entirely different place. It will disappear entirely because medical science will treat all diseases in the home. It will remain a center of treatment only for the ambulant patient. All health services will be rendered by the state in a series of 10 or 12 central points to which anesthetized patients will be sent through pneumatic tubes. Mechanical and electronic scanners will assemble and record each patient's symptoms, an IBM machine will diagnose and prescribe treatment, and an automatic therapy machine will give treatment to the patient comfortably relaxed on a continuous conveyor belt. Psychotherapy, the author predicts, may develop to the point that all treatment will be given through the psychiatrist, and the hospital, if it exists at all, will become a club.

In a fitting conclusion, he says, ". . . the most ominous portent of all is that hospitals will eventually be planned without architects and operated without doctors."

A more realistic problem centers about our growing population. Medical World News has the following to say regarding how physicians are reacting to shifts in the nation's population as shown by the 1960 census. It points out three "firm trends." (1) Physicians continue to flock to large urban centers. Population of 50 of the largest cities increased 5 per cent, but physicians practicing in them increased 23 per cent over the last decade. (2) Cities of the South, Southwest, and Pacific Coast have increased their physician population most rapidly, but the growth of cities in these sections of the country has outstripped medical growth. (3) Physicians increased in the Eastern and Midwestern cities, despite population declines in these regions. Advice to physicians: Go West (or South), young doctor, go West (or South).

Tumor Test

A more sensitive tumor skin test (TST) was reported recently in the Journal of the American Geriatrics Society by Dr. Jack G. Makari. Only 3 per cent of all patients with carcinoma showed negative results as compared with 31 per cent in an earlier study using less sensitive TST.

Clearing the Air

Several reports have appeared on anti-smog devices for automobiles. The Monoxit Exhaust Purifier embodies a unique combination of direct flame afterburner and catalytic converter in a compact, easy to install unit. It is no larger than three inches in its major dimension and is attached directly to the exhaust manifold under the hood.

The cost is $50. The Monoxit Pantex Corporation will make it available to automobile manufacturers and the public in 1961.

Anti-smog devices will be required in the Los Angeles Basin, but we wonder how long it will take the manufacturer to convince the authorities in all congested areas to pass similar laws.

Jargon

The following title is food for facetious thought: "Plastic Surgeons meet in Los Angeles October 2-7." We didn't realize that they now made surgeons out of plastic.

Scholarships Go Wasting

More than 237,000 scholarships are available to help lessen the drain on savings of families sending their children off to college, according to the U. S. Office of Education. Some of these scholarships are not even used because people don't know about them.

So, if your family income is less than 10 to 12 thousand dollars a year, by a ruling of the College Entrance Board, you may start searching for that scholarship for which your child

can qualify. You may write for information to Scholarship Service, the Register, 2020 M Street, N.W., Washington 6, D. C.

The National Defense Student Loan Program has $57.7 million in Federal funds for 1960-1961 to encourage and assist able students to continue their higher education who might not otherwise be able to do so.

The seven Illinois institutions participating in the program have been allocated $2,498,330 to meet 1960-1961 requests.

Medicine Around The World

As the world shrinks and small nations come into the limelight, the World Medical Association has gathered some interesting facts about medical practice around the world.

Guatemala with a population of 3,500,000 has 700 physicians, 500 of whom practice in the capital city. . . The Sudan Medical Association has, since that country became independent, changed its registration from that of a Trade Union to that of a socio-academic organization . . . Ghana has 219 doctors, 20 of whom are specialists, for a population of about 5.5 million . . . The Australian Pharmaceutical Benefits Scheme has been extended, imposing indirect limitations on prescribing and a cumbersome administrative process . . . Under the Japanese Health Insurance scheme the doctor receives a fee of 15 cents for a complete physical examination or a consultation.

The Safest Way

What is the safest way to travel? The Metropolitan Life Insurance Company has figured death rates per 100 million passenger miles for 1957-59 as follows:

Railroad 0.13
Buses 0.19
Domestic scheduled airlines 0.44
Passenger automobiles 1.28 (1958-59 rates)

Airlines have reduced their passenger death rates 90 per cent in the last 20 years (4.70 in 1937-39), and 75 per cent within the past 10 years in face of a volume measured in passenger miles that has more than quadrupled. Air travel now appreciably exceeds the passenger mileage on the country's railroads. On the other hand, the passenger death rates for scheduled airlines is only one-third of that in automobile travel on turnpikes, which is safer than automobile travel generally.

Gains in safety in scheduled air travel are attributed to progress in the design and construction of aircraft, thorough training for pilots and other plane personnel, longer runways, improved traffic control procedures, and more accurate information on weather conditions.

Hepatitis Incidence and Deaths

Despite the cyclic occurrence of hepatitis, which includes homologous serum hepatitis, deaths from infectious hepatitis remained relatively constant (800 to 900) from 1952 to 1958. There is no explanation for this, according to the USPHS. The number of deaths in all age groups under 45 was essentially the same throughout the period, but there were more deaths over age 44 in 1957, the low incidence year, than in 1954, the high incidence year.

The outcome in the recent increase in hepatitis will not be known for another year.

Research is Wonderful

The following abstract of the article "Perception of Apparent Motion in the Common Toad" appeared in *Science*.

A simple and inexpensive apparatus makes possible the feeding of nonliving objects to the toad. The device is used to demonstrate the perception of apparent or "induced" motion. Two methods are successful: (i) toad and food moving together at a constant velocity in a stationary environment; (ii) toad and food stationary with the environment moving. The phenomena are similar to those found in human beings. *Walter Kaess and Francis Kaess. Perception of Apparent Motion in the Common Toad. Science. Oct. 7, 1960.*

Setting Terms Straight

Dr. Robert J. Huebner finally called a spade a spade when he told the American Academy of General Practice that "nonparalytic polio" is an "overused wastebasket term." The diagnosis is poliomyelitis regardless of whether the virus produces paralysis, respiratory ailments, or meningitis.

ANNOUNCEMENTS

Conference on effective medical writing

"Effective Medical Writing" will be the subject of workshop sessions on Saturday, the second day of the American Medical Writers' Association annual meeting at the Morrison Hotel, Chicago, November 18 and 19. Walter Kahoe, Ph.D., medical director of J. P. Lippincott Company, Philadelphia, will be moderator of the morning panel. Physicians participating will be W. D. Snively, chairman of the Mead Johnson & Company of Evansville, Ind., and Joseph Garland, Boston, editor of the New England Journal of Medicine.

The techniques of medical writing will be under discussion by the second panel. Physician editors participating will be Morris Fishbein, Chicago; Richard M. Hewitt, Rochester, Minn.; Walter C. Alvarez, Minneapolis; Laurence D. Redway, New York.

Opportunities for further discussion will be afforded at the table-hopping smorgasbord luncheon, one speaker presiding at each table.

Nonmembers will be charged a registration fee of $5 for the Saturday program.

At two panel discussions Friday, subjects to be discussed by authors, editors, and publishers will be "Information: What It Is and How It's Used" and "Modern Aids for Medical Communication." These discussions are open to interested persons.

Dr. T. R. Van Dellen, Chicago, will be installed as president.

College of chest physicians meeting

The American College of Chest Physicians will hold its interim session November 26 and 27 at the Shoreham Hotel in Washington, D. C. Administrative sessions will be held November 28, following the scientific sessions.

The scientific program includes symposia on Congenital Bronchopulmonary Disorders, The Role of Steroid Therapy in Chest Diseases, and Current Therapeutic Issues.

Fireside Conferences on Sunday evening and three round-table luncheon discussions complete the program.

Fellowships for foreign study

The Association of American Medical Colleges is seeking applicants for the Smith Kline & French Foreign Fellowships that enable selected senior medical students to benefit from clinical experiences and to practice preventive medicine at outpost facilities in greatly differing societies and cultures.

Application forms and brochures detailing complete information on the foreign fellowships have now been mailed to deans of all U. S. medical schools.

Last year, grants totaling some $50,000 were made to 29 students under the program. The cash awards are made from a $180,000 fund provided by Smith Kline & French Laboratories, Philadelphia pharmaceutical firm.

Fellowships are available to men and women who have completed their junior year of medical school; eligibility will continue through the senior year. Those who have started internships will not be eligible. It is expected that about 30 fellows will be named in 1961.

Applicants will be asked to present a detailed plan of work and study for the duration of the grant.

Fellowships provide money for travel costs and living expenses during the time of the student's 12 week overseas program. The amount of the grant will vary depending on the proposed program and its location. In 1959, the first year of the fellowships, grants ranged from about $1,000 to $3,000.

An A.A.M.C. Selection Committee of prominent medical educators will act on the applications in early February, and fellows will be announced in early March.

During the first year, students studied in such places as Bolivia, Republic of the Congo, Ghana, Southern Rhodesia, India, Thailand, and Java. Seventeen of the first year fellows studied at church-supported mission hospitals. The remaining 12 were stationed at government, university, and other hospitals and clinics.

Board examination

The next scheduled examination, (Part 1), written, will be held in various cities of the United States, Canada, and military centers outside the Continental United States, on Friday, Jan. 13, 1961, by the American Board of Obstetrics and Gynecology.

Candidates submitting applications in 1960 for the 1961 examinations are not required to submit case reports as previously required to complete the Part 1 Examinations of this board. In lieu of this requirement, new candidates are required to keep in their files a duplicate list of hospital admissions, as submitted with their application, for submittal at the annual meeting in Chicago should they become eligible to take the Part II (oral) Examinations.

Reopened candidates will be required to submit case reports for review thirty days after notification of eligibility.

Current Bulletins may be obtained by writing to Robert L. Faulkner, M.D., Executive Secretary and Treasurer, American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland 6.

AMA clinical meeting in Washington

The clinical meeting of the American Medical Association in Washington, D. C., November 28-December 1, will stress "New Developments in Old Diseases and Old Developments in New Diseases," in symposia, presentations, and discussions.

Participants will include proponents of both sides where different views exist on the management of a disease or medical condition.

All the scientific sessions will be held at the District of Columbia National Guard Armory. Starting at 9:30 a.m. on Monday and running until 11:30 a.m. Thursday, three sections in both morning and afternoon will be held simultaneously in separate rooms at the Armory. One section will be devoted to presentations of formal papers, another to panel discussions, and the third will be a symposium, all of which have question-and-answer periods. Approximately 125 scientific exhibits (over 100 exhibits in the Industrial Exhibition), medical motion pictures, and closed color television showings from Georgetown University Hospital are listed in the program.

Three scientific breakfast programs will be held on Tuesday and Wednesday at the Statler Hotel with the themes of "To Do or Not To Do" and "Problems of Management" in particular diseases or types of cases.

Pediatric residency fellowships

Wyeth Laboratories, Philadelphia, is offering 20 two-year grants to encourage qualified doctors to pursue postgraduate resident training in pediatrics. Each Pediatric Residency Fellowship carries an annual stipend of $2,400, effective July 1, 1961. Closing date for applications is November 30. Awards will be announced the first week in February.

Eligible for the fellowships are interns, physicians who have recently completed their internships, military service, or U. S. Public Health service tours, and research fellows. Recipients must be citizens of the United States or Canada and have a doctor's degree in medicine.

Fellowships will be awarded on the basis of applicants' interest in pediatrics, character, conscientious and able performance of duties, and academic competence.

Those receiving grants must serve a residency in pediatrics in a hospital properly accredited by the Residency Review Committee of the Council on Medical Education and Hospitals of the American Medical Association, the American Board of Pediatrics, and the American Academy of Pediatrics.

Recipients will be chosen by a committee composed of five eminent pediatricians whose chairman is Dr. Phillip S. Barba, University of Penn-

sylvania School of Medicine and past president of the American Academy of Pediatrics.

Applications should be submitted to Dr. Barba, School of Medicine, University of Pennsylvania, Philadelphia 4.

Film on nausea

A new 21-minute color film, "The Mechanism and Control of Nausea and Vomiting," available on a free-loan basis to professional audiences, was recently released by Smith Kline & French Laboratories.

The film is based on the findings over the past 10 years on the neurological mechanism involved in nausea and vomiting, using fluoroscopy and animation to review some of the diseased states that cause vomiting, and illustrating the roles of the gastrointestinal, respiratory, and central nervous systems in emesis. It also describes the pharmacological rationale for the use of phenothiazine drugs in the control of vomiting and discusses the drugs as antiemetic agents in therapy.

The film is obtainable through local representatives of the Philadelphia pharmaceutical firm or through the Medical Film Center, Smith Kline & French Laboratories, Philadelphia 1.

1961 Van Meter Prize Award

The American Goiter Association, Inc., again offers the Van Meter Prize Award of $3,000 to the essayist submitting the best manuscript of original and unpublished work concerning "Goiter—especially its basic cause." The studies may relate to any aspect of the thyroid gland in all of its functions in health and disease.

The essays may cover either clinical or research investigations, should not exceed 3,000 words in length, and must be presented in English. Duplicate typewritten copies should be sent to the Secretary, John C. McClintock, M.D., 702 Madison Avenue, Albany 8, N. Y., not later than Jan. 1, 1961.

International PG course

Physicians and surgeons from three nations will participate in an international clinical postgraduate program to be offered by the University of California Extension in January, 1961.

It is sponsored jointly by the School of Medicine, UCLA; Universidad Nacional Autonoma de Mexico; the University of Guadalajara School of Medicine; and the Escuela Nacional de Medicina, Mexico, D.F. Participating doctors will have an unusual opportunity to avail themselves of different types of case material in this section of the American continent.

The program, which will convene in Mexico City, continue in Acapulco, and close in Guadalajara, will be as follows:

In Mexico City January 9 through 13:

Gastroenterology and Internal Medicine, Cardiology, Pediatrics, Dermatology and Mycology, and General Surgery.

In Acapulco: January 15—Obstetrics and Gynecology;

January 17—Traumatic Surgery.

In Guadalajara: To be announced.

Requests for additional information or applications should be addressed to Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

The end of Hoxsey treatment

The last remaining major source of exploitation of cancer victims by the worthless and discredited Hoxsey cancer treatment has been eliminated by a Federal court order. "Complete and final discontinuation" of the treatment is required. This culminates ten years of almost continuous litigation.

Dr. Harry R. Taylor, who operates the Taylor Clinic in Dallas, where the Hoxsey treatment was being administered, and two members of his staff, Walter J. Williams, M.D., and Allan F. Devore, D.O., have consented to a decree of permanent injunction which orders them to stop permanently the sale of medications comprising the Hoxsey cancer treatment, according to George P. Larrick, Commissioner of the Food and Drug Administration.

Since May 1, 1957, Mr. Hoxsey has been receiving 50 per cent of the profits of the clinic, which he had owned and operated previously. It has been estimated that cancer patients paid over $50 million for the worthless treatment. In a separate supplemental consent decree of injunction, Hoxsey is ordered to cease participating directly or indirectly in sharing the profits of the operations of the Taylor Clinic.

Three lengthy court trials have been won by the government over the decade. In October, 1954, Hoxsey was permanently enjoined from sending his drugs by interstate commerce with labeling as effective cancer treatment. In 1956 seizure of half a million Hoxsey cancer pills by the government was upheld by the Federal court at Pittsburgh. The third trial in 1957 resulted in an injunction against an off-shoot, the Hoxsey Cancer Clinic in Portage, Pa., which was closed permanently in 1958 after it violated the Court's injunctive order.

Medical journal suspends publication

With the July issue the Mississippi Valley Medical Journal, official journal of the Mississippi Valley Medical Society since 1939, suspended publication. Dr. Harold Swanberg, Quincy, has been editor. The journal was incorporated in Clinical Medicine in September.

Applications for research grants

Application for grants for medical and social research in tuberculosis and other respiratory diseases are now being accepted by the National Tuberculosis Association, through its medical section, The American Thoracic Society. December 15, 1960, is the deadline for submission of applications for the grant year July 1, 1961, through June 30, 1962. For further information and application forms, write the Division of Research and Statistics, American Thoracic Society, 1790 Broadway, New York 19.

New disability provisions

Under the 1960 Amendments to the social security law recently enacted, severely disabled workers no longer need wait until age 50 to become entitled to disability insurance benefits. Any person under age 50 who has already had his social security record "frozen" because of his disability will soon receive a letter explaining exactly what should be done to secure disability benefits.

Any disabled worker under age 50 who has never applied to have his social security record frozen should contact his social security office immediately to learn whether he is eligible for monthly benefits, payable beginning with the month of November, 1960.

To be eligible for disability benefits, the disabled worker must have worked in a job covered by social security, or have been in covered self-employment, for at least five years out of the ten years preceding the date of disability.

Awards for research papers

Two cash awards for research papers are being offered to residents, interns, and senior medical students in the Chicago area by the American Medical Women's Association, Branch No. 2, of Chicago. A panel of specialists will act as judges, and the papers will be presented at the April 12, 1961, meeting of the American Medical Women's Association at the Mary Thompson Hospital. Both men and women are eligible. First prize $100, second prize $50.

Booklet for parents

The Children's Bureau has a new publication, "The Mongoloid Baby." It outlines some of the sources of help which parents can find either on a community or state basis and points out some of the ways they can help their child develop to the fullest the abilities he has. The publication is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 10 cents a copy.

New ileostomy manual

QT Incorporated, Boston, devoted to mutual encouragement and assistance of ileostomy patients, has published a fourth edition of its "Manual for Ileostomy Patients." It has been assisted by the Medical Foundation of Boston. Leading physicians and surgeons have contributed articles on the practical management of the ileostomy.

For information about it, address QT Incorporated, The Medical Foundation, Inc., 227 Commonwealth Ave., Boston 16.

TV program cancelled

CIBA has cancelled its weekly television review of medical news for physicians, "This Week in Medicine," until further notice.

NEWS of the STATE

County

Bureau

J. Harold Hopkins, who has been a physician in Walnut for the past 33 years, left general practice on November 1 to take up duties in the student health service at the University of Illinois, Champaign. He also has a teaching assignment there. This means that there is no Hopkins physician in Bureau County for the first time since the Civil War. Both his grandfather and father were physicians there. His two sons are now in residencies at Mayo's.

Champaign

The Champaign County Medical Society has approved policies for operation of the Well Baby Clinic in Champaign.

The clinic is held three mornings each month in the Public Health building and is attended by various members of the County Medical Society who are interested in pediatrics and who donate their services free of charge.

Representatives of the Department of Public Health and the Service League, both of Champaign, and the Child Welfare Committee of the County Medical Society had several meetings this last summer during which suggestions for policy were drawn up.

Cook

Dr. Bennett Heads Biological Sciences. Dr. H. Stanley Bennett, professor and chairman of the department of anatomy at the University of Washington, Seattle, and immediate past president of the American Association of Anatomists, has been appointed dean of the division of biological sciences at the University of Chicago, effective January 1. Dr. Bennett is widely known as a specialist in cellular anatomy and cytochemistry. His work with the electron microscope has yielded fundamental new knowledge of how human muscles work. He will succeed Dr. Lowell T. Coggeshall, vice president for medical affairs since March, who held the deanship for 13 years. Dr. Bennett has been a member of the National Advisory Health Council to the United States Public Health Service.

On Cultural Exchange Mission. Dr. Clifford J. Barborka, associate professor of medicine, Northwestern University Medical School, is one of five American scientists selected by the U. S. Public Health Service to survey the progress of metabolic disease research in the Soviet Union. The mission is part of the scientific-cultural exchange program under the 1958 Lacy-Zaroubin Agreement between the United States and the Soviet Union.

Honored. Dr. Russell von Milliser, professor of pathology at Chicago Medical School, was recently chosen as the teacher from whom the students have gained the most during medical training. The selection was made by members of the sophomore class. A student-faculty dinner was held in his honor in October.

Promotions. Dr Aldo A. Luisada has been promoted from associate professor to full professor of medicine at the Chicago Medical School. He first came to the School in 1950 to establish its cardiovascular laboratories, devoted to both experimental research and clinical studies and to teaching. Since then, new methods have been developed there which now make it possible to obtain important data and techniques that also permit the recording of electrocardiograms from inside the heart.

Dr. Allen L. Lorincz, associate professor of dermatology at the University of Chicago since

1957, has been appointed section head of dermatology in the department of medicine, succeeding Dr. Stephen Rothman, retired.

For Community Welfare. The Institute of Medicine of Chicago has recently established two committees: the Committee on Rehabilitation, Dr. Lowell D. Snorf, chairman, and the Committee on Alcoholism, Dr. Norman B. Roberg, chairman.

Cancer Research Training Program. A $260,000 grant for a training program in experimental cancer research covering a five year period has been awarded to The Chicago Medical School by the Public Health Service. The project will be carried on in the new Medical Research Institute now nearing completion.

The program for pathologists will be directed by Dr. Henry Rappaport. Dr. Philippe Shubik is head of the school's oncology division responsible for the new program.

Election. Newly elected officers of the Chicago Gynecological Society are Dr. Edwin J. DeCosta of Passavant Memorial Hospital, president; Dr. David N. Danforth of Evanston Hospital, president elect; Dr. Lester E. Frankenthal, Jr., of Michael Reese Hospital, vice president; Dr. John H. Isaacs of Loyola University, treasurer; Dr. Charles P. McCartney of the University of Chicago Medical Center, secretary; and Dr. Hugo C. Baum of Presbyterian-St. Luke's Hospital, assistant secretary.

Swenson Succeeds Potts. Dr. Orvar Swenson has been appointed surgeon in chief at Children's Memorial Hospital, succeeding Dr. Willis J. Potts, who has retired from that position but will remain on the surgical staff.

Dr. Swenson comes from Boston where he was surgeon in chief at Boston Floating Hospital for Infants and Children and senior surgeon at the New England Center Hospital.

Heads NU Pharmacology. Dr. Joseph A. Wells, professor of pharmacology since 1950 in the Northwestern University Medical School has been named chairman of the pharmacology department. He received his Ph.D. and M.D. degrees from Northwestern, was first a departmental assistant in pharmacology in 1938, an instructor in 1941, an associate in 1944, and was promoted to assistant professor of pharmacology in 1946. He has authored or co-authored more than 50 papers for medical journals.

Dr. Wells is past president of the Illinois section and past associate editor of the Society for Experimental Biology and Medicine, and a member of Sigma Xi and the American Association for the Advancement of Science.

Hospital Staff Election. Dr. Eugene T. McEnery, chairman of the pediatrics department at St. Elizabeth's Hospital has been elected president of the hospital's medical staff. Dr. Nicholas J. Bruno has been elected vice president and Dr. Chester F. Pollowy secretary. Dr. Eugene J. Adamski has been re-elected to a second term as treasurer.

Fulton

At the October meeting of the Fulton County Medical Society in Canton a thirty minute film, "New Concepts in Treatment of Diabetes," was shown to members.

Madison

The Madison County Medical Society has elected as treasurer Dr. Henry Malench of Edwardsville to fill out the unexpired term of Dr. George H. Vernon. Dr. Vernon has recently moved to Du Page County to become medical director of the Du Page County Tuberculosis Board.

St. Clair

The St. Clair Medical County Society sponsored an All America City Health Fair in East St. Louis October 27-29 in recognition of the award given to the city. Its purpose was to bring to the attention of the people county health services available to them through hospitals and health and welfare agencies; to promote health for individuals, their families and the communities; and to point out to young people the many careers available in the medical field.

All schools and organizations of young people were invited to arrange field trips to the Health Fair. Continuous movies on health subjects and

careers in the medical field were shown in separate rooms.

The medical society sponsored three contests for children: health exhibits (grades 7-12), poster contest (grades 7, 8, and 9), and a slogan contest (grades 1-6).

Many physicians served on committees and took active part in the fair. Dr. Matthew B. Eisele was chairman.

General

Foundation appoints executive director

Mr. Jerry J. Walsh, Chicago, formerly of Columbus, Ohio, has been appointed executive director of the Illinois Chapter of the Arthritis and Rheumatism Foundation. He has been associated with the work of the Arthritis and Rheumatism Foundation for the past ten years. For the past five years he has been the regional director for the Foundation covering Ohio, Kentucky, and Indiana.

Dr. Carnahan named Illinois GP for 1961

As we go to press we learn that Dr. William E. Carnahan, 75, of Macomb, who has practiced in McDonough County for 46 years, has been selected "Outstanding Illinois General Practitioner for 1961." He has been active in many phases of community life.

The December Journal will carry a full story.

Governors for diabetes association named

Dr. James B. Hurd of Chicago has been appointed by the American Diabetes Association as governor for Northern Illinois, and Dr. Thomas D. Masters of Springfield has been reappointed governor for Southern Illinois for the three-year term 1960-1963.

Psychiatric institute accredited

The Illinois State Psychiatric Institute has received full accreditation by the Joint Commission on Accreditation of Hospitals. The institute, newest of the state mental institutions operated by the state Department of Public Welfare, is the third fully accredited hospital in the state system. Galesburg State Research and Peoria State hospitals were previouslly accredited.

The 11-story, 434-bed, $9.5 million institute is located in the medical center at 1601 West Taylor. It links the most modern care and intensive treatment of acutely ill mental patients with training and education of medical students and other psychiatric personnel and research into the causes and treatment of mental illness. Its treatment, training, education, and research program brings the five medical schools of Illinois and the Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, actively into cooperation with the state welfare department. Separate floors are under the direct supervision of each cooperating institution.

PHS forming committee on polio control

A Surgeon General's Committee on Poliomyelitis Control to be made up of representatives of the medical and health professions and the general public is being formed by the Public Health Service. Invitations have been sent to the heads of 23 organizations asking them to designate members to serve on the committee:

American Academy of Pediatrics; American Academy of General Practice; American College of Preventive Medicine; American Hospital Association, American Medical Association, American Nurses Association; American Pharmaceutical Association; American Public Health Association; AFL-CIO; Association of State and Territorial Health Officers; Association of State and Territorial Public Health Educators; Association of State and Territorial Public Health Laboratory Directors; Children's Bureau; Conference of State and Territorial Epidemiologists; Council of State Governments; Department of Defense; General Federation of Women's Clubs; National Congress of Colored Parents and Teachers Association; National Congress of Parents and Teachers Association; National Foundation; National Health Council; National Medical Association, Inc.; Pharmaceutical Manufacturers' Association.

An agenda Committee met October 11-12 to consider both the technical and administrative problems and develop the basic agenda for the first meeting on the Committee on Poliomyelitis Control. Members represented the American

Academy of Pediatrics, American Academy of General Practice, American Medical Association, Association of State and Territorial Health Officers, Children's Bureau and the National Foundation.

The Surgeon General has invited a number of experts in the field of polio vaccines to serve as consultants to both committees.

The first meeting will probably be in December or January.

Accidental poisoning rate rises

Accidental poisoning cases among children are increasing alarmingly, according to Dr. L. L. Fatherree, director of the Illinois Department of Public Health.

Of the 4,100 cases of accidental poisoning of children up to age 12 during the first eight months of this year, almost 3,900 occurred in children up to and including age four, with the highest percentage among the two-year-olds. For the same period of 1959, cases reported were slightly more than 3,300.

About one-third of all poisoning cases in the two-year-old age group are the result of aspirin or aspirin products. Household preparations rank second.

A state-wide poison control program to save children's lives was begun in 1956 and has grown from two centers to 62. These centers for emergency treatment were set up in hospitals on a 24-hour basis; each maintains up-to-date reference materials on ingredients of hundreds of thousands of commercial products, and recommends treatment methods. The goal is to have a center within every 25-30 mile radius.

A new state law, administered by the Public Health Department, demands that all hazardous substances intended or suitable for use in households be plainly labeled to show the hazard.

Hill-Burton grants in Illinois

In Illinois to date, 86 projects at a total cost of $118,143,366, including federal contribution of $29,914,924 have been completed under Hill-Burton grants. The projects have furnished 4,684 additional hospital beds.

There are 37 other projects under construction designed to supply 2,195 additional beds, and five others for 1,395 beds have been approved.

The last two categories of projects will cost $70,161,445 with federal contributions of $15,405,809.

Baxter gives biologicals for Project Hope

A contribution of intravenous solutions that will provide approximately 1,000 patient days of care on Project Hope, a 15,000 ton medical ship that has sailed to the Far East, has been made by Baxter Laboratories, Inc.

The floating medical center has a regular staff of 15 physicians, two dentists, two pharmacists, 24 nurses, and 30 other personnel. It will first train personnel in Indonesia and Vietnam.

Cytodiagnostic training promoted

The University of Chicago is the recipient of an $11,370 grant from the Public Health Service for cytodiagnostic training of laboratory assistants.

This is one of 33 grants totalling $789,236 for demonstrations in the early diagnosis of cancer and for training laboratory assistants. The grants were awarded on the recommendation of the Advisory Committee to the Cancer Control Program and the National Advisory Cancer Council. The Cancer Control Program in the Bureau of State Services administers the grants.

December clinics for crippled children

December	1	Carlinville, Carlinville Area Hospital
December	2	Chicago Heights (Cardiac), St. James Hospital
December	6	Belleville, St. Elizabeth's Hospital
December	6	Peoria, Children's Hospital
December	7	Alton (Rheumatic Fever), Alton Memorial Hospital
December	7	Carmi, Carmi Township Hospital
December	7	Hinsdale, Hinsdale Sanitarium
December	8	Springfield, St. John's Hospital
December	9	Evanston, St. Francis Hospital
December	13	East St. Louis, St. Mary's Hospital
December	13	Peoria, Children's Hospital
December	14	Champaign-Urbana, McKinley Hospital
December	15	Bloomington a.m. (General) and

	p.m. (Cerebral Palsy), St. Joseph's Hospital
December 15	Rockford, Rockford Memorial Hospital
December 20	Effingham (Rheumatic Fever), St. Anthony Hospital
December 21	Chicago Heights (General), St. James Hospital
December 21	Elgin, Sherman Hospital
December 22	Elmhurst (Cardiac), Memorial Hospital of Du Page County

Lectures arranged through ISMS

Dr. Peter J. Talso, M.D., assistant chairman of the departments of medicine at Stritch School of Medicine, Loyola University and Mercy Hospital, spoke on cardiology at the joint meeting of the Lee-Whiteside counties medical societies in October. The lecture was arranged by the Postgraduate Medical Education and Scientific Service Committee.

Homemaker services expanding

Demand is forcing the growth of Homemaker services in Chicago. The expansion of personnel and branch offices will be made in accordance with the request of the Welfare Council of Chicago to help meet community needs. Establishing a new Homemaker Service Agency with 25 homemakers, necessary administrative staff, agency headquarters, and two district offices is estimated to cost $190,000 annually. Child and Family Services (102 years old) with its present administrative staff and headquarters can carry out this expansion, according to David J. Christensen, executive director of the agency, for $134,000, a savings of $56,000 annually. Initially it will employ 10 additional homemakers for assignment in Chicago. Then two district homemaker service offices will be established in surburban areas.

Deaths

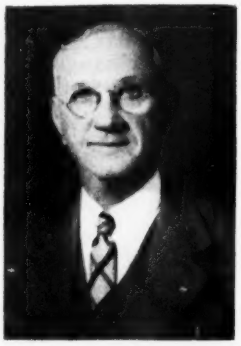
Henry S. Babcock*, retired, Englewood, Florida, formerly of Vermilion County, a graduate of the University of Michigan Medical School, Ann Arbor, in 1891, died recently, aged 91.

Arthur R. Elliott*, emeritus member, South Haven, Mich., a graduate of Queen's University Faculty of Medicine, Kingston, in 1889, died February 6, aged 91.

Robert T. Ewan*, Lewistown, a graduate of the College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois in 1904, died recently, aged 83.

Jacob James Franklin*, Ramsey, a graduate of St. Louis University School of Medicine in 1941, died June 28, aged 52. He was on the staff of the Fayette County Hospital, Vandalia.

Ralph R. Ferguson, retired, St. Petersburg, Fla., a graduate of Rush Medical College, died October 9, aged 82. A highly regarded member of the medical profession, he was president of the Chicago Medical Society in 1926 and 1927, and headed the Illinois State Medical Society in 1932. Dr. Ferguson served on the faculty of Rush Medical College from 1904 to 1909. A native of Kellogg, Iowa, Dr. Ferguson, who was a member of the 50-Year Club, had lived in Florida since retiring from his practice as a pediatrician in Chicago 1949. He was a veteran of the Spanish-American War and World War I. He served as a medical corps major in France from 1917 to 1919.



Augustus D. Harper, Crossville, a graduate of Barnes Medical College in 1910, died September 2, aged 79.

Clara E. Holmberg*, Springfield, a graduate of Hahnemann Medical College and Hospital in 1903, died June 6, aged 82.

John B. Karr*, Chicago, a graduate of Loyola University School of Medicine in 1922, died September 9, aged 63. He was a member of the executive board of Holy Cross Hospital, the American College of Gastroenterology, American Academy of General Practice, and a past president of the Englewood branch of the Chicago Medical Society.

Harry A. Klein*, Los Angeles, formerly of Chicago, a graduate of Chicago Medical School in 1928, died June 20, aged 64. He was a member of the Chicago Society of Internal Medicine.

JOHN MAYHUE LUND*, Dixon, a graduate of the College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois in 1908, died June 19, aged 79.

LYMAN S. PERKINS*, Yorkville, a graduate of American College of Medicine and Surgery (Chicago Eclectic Medical College) in 1896, died August 27, aged 83. He served as deputy coroner for four years and was Kendall County coroner for 16 years.

EDWARD H. SEIFERT, Avon, a graduate of Chicago Medical School in 1918, died September 7, aged 72. He was a veteran of both World War I and World War II, heading a 3,500-bed hospital on New Caledonia and another hospital on Saipan after 1941, and held the rank of colonel when retired from service.

WILLIAM NEWTON SIEVERS*, White Health, a graduate of Louisville School of Medicine in 1910, died September 17, aged 75. He was a member of the staff of the John and Mary E. Kirby Hospital in Monticello, and a former president and secretary of the Piatt County Medical Society.

HERBERT E. TAYLOR, retired, Paradise, Calif., formerly of Chicago, a graduate of The Hahnemann Medical College and Hospital in 1914, died September 19, aged 70. He was on the staff of the Illinois Masonic Hospital.

GUY F. TURNER*, Long Point, a graduate of New York University College of Medicine in 1899, died July 15, aged 84.

CHARLES L. WEBER*, Cairo, a graduate of St. Louis University School of Medicine in 1906, died June 25, aged 77. He was past-president of the Alexander County Medical Society, medical director of the Alexander County Tuberculosis Sanatorium, a former health officer, and was a member of the medical staff of St. Mary's Hospital for many years. He was attached to a special American Medical unit that served with the Italian army during World War I and was decorated by the Italian army and government for his services.

LEO A. ZELENZINSKI*, Chicago, a graduate of Loyola University School of Medicine in 1927, died September 1, aged 61. He was a member of the medical staff of the Evangelical Hospital of Chicago.

**Indicates member of the Illinois State Medical Society*

BOOK REVIEWS

A PRIMER OF ELECTROCARDIOGRAPHY. George E. Burch, M.D. 4th ed. $5. Pp. 293. Philadelphia, Lea and Febiger, 1960.

This text continues as an outstanding primer for students and graduates who want to learn the essentials of electrocardiography. The beginner is introduced to all of the basic concepts, proper nomenclature, and vocabulary that are necessary for understanding the field of electrocardiography.

The writing is easily understood, and the concept of the field is practical. Explanation of theory is current, and clincal application of principals and "patterns" is very clearly stated.

This new edition is long enough to prepare the student to, as the author states, "extend his interest into the theoretic, experimental and clinical aspects of electrocardiography." This book is recommended highly.

Hugh Flack, M.D.

INDUSTRIAL PULMONARY DISEASES. E. J. King and C. M. Fletcher. $8.50. Pp. 269. Boston, Little, Brown and Company, 1960.

This is a collation of the presentations of a symposium held at the Postgraduate Medical School of London in September, 1957, and repeated in March, 1958. In each of the 21 chapters, eminent authorities briefly review their assigned phase of the seminar. The result is an excellent review of industrial pulmonary diseases as experienced in Great Britain. The chapters on bronchitis, coal-workers' pneumoconiosis and Caplan's syndrome (rheumatoid disease and pneumoconiosis) are particularly interesting in that these are peculiarly, but not exclusively, British. Recent studies indicate their occurrence in other industrial communities of the world. This text is a standard library reference for the industrial medical library, for the pulmonary disease shelf, and for the individual physician with interests in this area.

E. L. Walsh, M.D.

HISTOPLASMOSIS. Edited by Henry C. Sweany, M.D. $14.50. Pp. 538. Springfield, Ill., Charles C Thomas, 1960.

The editor of this classic monograph is well known to many Illinois physicians for his outstanding work in the field of tuberculosis while director of research and laboratories at Chicago Municipal Tuberculosis Sanatorium for over 25 years. The last ten years or so he has been devoted with equal energy and skill to elucidating some of the many problems connected with histoplamosis. The quality of his work is attested to amoung other things, by the winning of a gold medal for his exhibit on the pathology of histoplasmosis at an American Medical Association Annual Meeting.

This monograph is divided into 23 chapters and a summary. Each chapter is edited by a leading authority in the particular field, and the subject is superbly covered from the history of histoplasmosis to the place of histoplasmosis in the present-day practice of medicine. Each chapter is clearly and interestingly written. The general practitioner as well as the specialist will find

the book highly readable, informative, and valuable. A very adequate bibliography follows each chapter, permitting the specialist to delve deeper into the subject.

The morphologic and physiologic characteristics of *Histoplasma capsulatum,* written by Leo Pine, U.S. Public Health Service and Duke University, are well illustrated and have 83 references to significant literature.

The saprophytic reservoirs of histoplasmosis, a subject of interest to physicians in the Midwestern histopasmosis belt, is written by Chester W. Emmons, chief of the section on medical mycology, National Institutes of Health, one of the most active workers in elucidating the cycle of infection in this disease, while the geographic distribution of H. capsulatum in the world is covered by Libero Ajello of the Communicable Disease Center, Chamblee, Ga.

The histoplasmin skin test — technique, use, and significance — are well covered by Carroll E. Palmer, while the epidemiology of this infection and this disease is discussed by Michael Furcolow. Resistance of animals and man to histoplasmosis is discussed by S. B. Salvin. All of these authorities are of the U.S. Public Health Service.

John Procknow of the University of Chicago has written a chapter on the pathogenesis of histoplasmosis in animals, while the pathogenesis of histoplasmosis in humans is covered by the editor, Dr. Henry C. Sweany. The pathology of this disease, from the primary lesion covered by Jan Schwarz, the circumscribed localized lesion by Thomas F. Puckett, to the general pathology of histoplasmosis by Henry C. Sweany, is admirably discussed and well illustrated.

One hundred and fifty pages are given over to the clinical, radiographic, diagnostic, differential diagnostic, medical and surgical aspects of this fascinating disease: the x-ray aspects by Frederic N. Silverman, the clinical types of histoplasmosis by Michael L. Furcolow, the diagnosis of histoplasmosis by W. D. Sutliff, and differential diagnosis by Henry Pinkerton. Medical and surgical management of histoplasmosis is covered by J. Lewis Yates and by John W. Polk and their associates on the staff of Missouri State Sanatorium, Mt. Vernon, one of the institutions in which large numbers of cases of pulmonary histoplasmosis have come to light.

This book will be of value throughout the medical world, since the interest in this infection is spreading as it becomes more and more apparent that the disease is much more common than first believed. It will be of special interest to general practitioners and internists in the Middlewest, where infection is common and where pulmonary histoplasmosis is, if not on the increase, definitely more often recognized.

D. F. Loewen, M.D.

Electron Microscopy of the Cardiovascular System. Bruno Kisch, M.D. Translated from the original German Text by Arnold I. Kisch, M.D. $7.50. Pp. 180. Springfield, Ill., Charles C Thomas, 1960.

Bruno Kisch has summarized his electron microscopic studies of the past ten years of the ultrastructure of the heart and blood vessels heretofore available only to those investigators who have been able to read the author's original German, French, and Italian scientific articles. This English text is translated and revised from *Der ultramikroskopische Bau von Herz und Kapillaren,* which appeared in 1957, and is supplemented by the author's most recent observations. Despite previous and some persisting technical difficulties, artefacts, and misinterpretation, the electron microscope is expected to contribute as much to the understanding of present day physiology and pathology as the light microscope contributed in the nineteenth century.

The electron microscope greatly enlarges and clarifies the conventionally recognized structure of cardiac muscle, its minute longitudinal fibrils and the multiple cross striations, as well as the minute features of the capillary wall, but also demonstrates such minute structures as the sarcosomes, mural slits in the wall of protocapillaries, the structural identity of the Purkinje fiber and the terminations of cardiac nerves which are invisible by light microscopy alone. The author believes that sarcosomes contain important enzymes responsible for muscle contraction and that the sarcosomes within muscle fibers are responsible for the heart's ability to perform heavy work without rest for a lifetime. There is a mathematical relationship between the number and type of sarcosomes and the capacity to perform heavy work not only within the same animal but also in the same muscle of all the species within the animal kingdom thus far

studied. Associated with the chronic heart failure of man, there is a progressive osmeophilic degeneration of sarcosomes which the author believes causes impaired function and leads to deposition of lipofuscin and other lipids in the muscle fibers of such hearts. Ultra microscopic droplets found in capillary wall muscle fibers and cardiac nerves represent the material for exchange in living cells and may represent a nonmolecular transfer of the materials of life in cells.

The author's ponderous Germanic style should not be allowed to deter the reader from gleaning an adequate foundation for the anticipated further developments in electron microscopy which otherwise might be unintelligible for the cardiologist.

William H. Wehrmacher, M.D.

Correspondence

Dear Dr. Van Dellen:

Thank you for the opportunity to review two newly published books for the Illinois Medical Journal. Brief reviews in accordance with the pattern in the journal are enclosed.

These reviews are not favorable ones. I am sorry for this because I cannot honestly give a good opinion of either book. It is realized that the mere writing of a book implies a greater continuity of effort than most persons are capable of. Also, every book deserves some respect in spite of its imperfections. But these two books are an affront. Max Thorek writes that viscera are to be "dusted with sulfanamide powder" in cases of evisceration. Certainly this is pernicious advice. He says that "diathermy is often a useful means of . . . keeping the functions of the vital organs, especially the liver, at their best." No authoritative surgeon could agree. Thorek ignores science and rambles verbosely. How the book achieved any of the glorious reviews printed upon its dust cover is beyond me.

The other volume has good editing as its single virtue. As a pocket sized book entitled *Surgery for the Common Man* it might have some justification, but as an encyclopedia of modern surgery it is impossible. I note that no medical book publisher would print it.

Book reviews are a serious charge. Too many ignore the reader and purchaser of the book in order to favor the writer and publisher. These reviews are submitted to you in candor and honesty. They were an interesting bit of work and were enjoyable to me.

Please call upon me again if I can be of service to you.

Sincerely,
(Signed) John J. Bergan, M.D.

Dear Dr. Van Dellen:

I would greatly appreciate your publishing the following comment. In his review in your September issue of my book, *Electrocardiography: Principles and Practices*, Dr. Wehrmacher unintentionally made two rather important errors as to fact. First, he says that I produce "no pathological observations for such empirical interpretations." But all I had said was that current theoretical interpretations are unsound, and in support of this I did produce pathological observations, as to "position" and "hypertrophy" in Chapter 5, and as to localization of myocardial infarction in great detail in Chapter 12. Inasmuch as I had not offered any empirical interpretation, I should not have been expected to produce any evidence for it. All I had said was that *if* there is to be sound interpretation it will have to be empirically established. Dr. Wehrmacher's second error is in saying that "a fifth of the book is in the form of an appendix devoted to geometric and trigonometric analyses of electropotential conduction." This is incorrect. Of the 70 pages of Appendices (19 in number), only 26 pages are so occupied, only one-thirteenth of the book; the remaining 44 pages of Appendices are devoted to entirely different things.

Sincerely yours,
(Signed) Ernest Zeisler, M.D.

If all our misfortunes were laid in one common heap, whence everyone must take an equal portion, most people would be content to take their own and depart.—*Socrates*